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New East Texas Plan Unsatisfactory

Highest production in 1930, week ending Feb. 22, average daily output 2,609,096 bbls. Peak of U. S. production, week ending Aug. 24, 1929, average 2,975,435 bbls.

Production Will Increase Rapidly as Result of Extensive Drilling Campaign. Hope Held for New Order

By Andrew M. Rowley

Lowest daily average crude oil production in the United States during 1930 was for week ending Dec. 27 with average output of 2,144,074 bbls.

Unless a change is made in the method of determining the allowable production in East Texas, the output of that area will mount so rapidly the industry will again be in much the same condition it was before martial law stopped the debacle. Production of East Texas during the first 24 hours after the wells were permitted to reopen last Saturday is estimated at 415,875 bbls. There were 60 wells completed in the three fields there last week and locations made for 90 additional tests. At the same time there were 507 wells drilling.

If no change is made in the order of the Railroad Commission of Texas, under which the East Texas area is operating, it is felt from 1,500 to 2,000 additional wells will be completed there before the end of this year. With the season of lower consumption about here, large increases in production such as will result from such an intensive drilling campaign can have but one result—a drastic reduction in prices.

That is the dark side of the picture. Another special session of the legislature of Texas convened at noon on Tuesday of this week and it is felt Governor Sterling will make an effort to have enforcement of oil and gas laws placed in the hands of a conservation commission instead of by the Railroad Commission. There also is some hope that a definite production limit will be set for East Texas regardless of the number of wells drilled. Such a plan is the only method by which the industry can be stabilized and the output of the nation hold more nearly to market requirements.

Opening of the wells in East Texas and the order permitting a production of 225 bbls. per well regardless of the number of wells drilled will at least delay the day of $1 oil in Oklahoma. Unless Governor Murray recedes from his position, it appears as if martial law will continue in Oklahoma for some time. The shutdown in Oklahoma will prevent East Texas from wrecking the market structure so quickly. In the meantime it is believed some change will be made in the method of setting the allowable for East Texas.

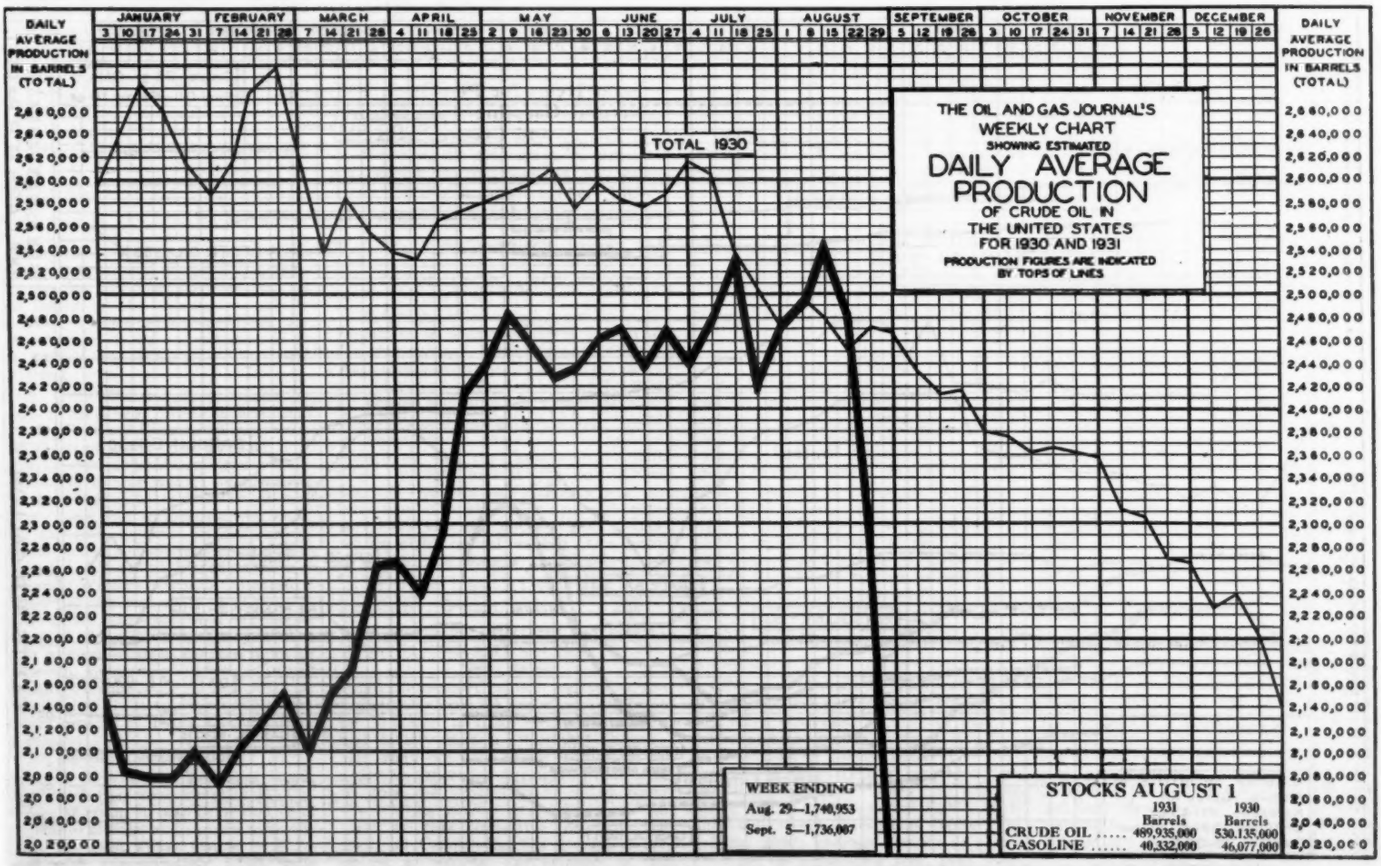
PRODUCTION IN THE UNITED STATES

Estimated daily average production of crude oil in the United States for week ended September 5 and a comparison with the previous week follows:

	Sept. 5	Aug. 29
Oklahoma—		
Oklahoma	9,310	7,535
Seminole-St. Louis	50,720	58,520
Remainer of State	196,205	199,360
Total Oklahoma	256,235	265,415
East Texas—		
Kilgore	(*)	(*)
Lathrop	(*)	(*)
Joiner	(*)	(*)
Total East Texas	(*)	(*)
West Texas	205,553	206,762
North Central Texas	75,657	74,833
Texas Panhandle	61,271	59,068
East Central Texas	53,325	53,938
North Louisiana	29,785	29,650
Arkansas	37,890	37,290
Kansas	98,515	99,315
Total Mid-Continent area	818,231	826,271
Gulf Coast	145,900	146,684
Southwest Texas	63,985	64,566
Eastern	109,000	107,000
Rocky Mountain area	93,891	92,432
California—		
Santa Fe Springs	61,750	61,250
Long Beach	77,500	77,500
Playa Del Rey	21,150	22,000
Elwood	26,250	26,250
Kettleman Hills	62,250	62,000
Remainder of State	256,100	255,000
Total California	505,000	504,000
Total United States	1,736,007	1,740,953

*Fields shut down.

→ **Decrease, 4,946 Bbls. Daily** ←



Oklahoma Gasoline Prices Decline

Reopening of East Texas Fields Brings Reactionary Trend. Naturals Lower. Few Changes in Other Products

By C. O. Willson

The resumption of operations at a number of East Texas refineries, starting Saturday, brought a highly speculative condition in the Mid-Continent refinery market, including Oklahoma (Group 3). Many buyers and a few sellers apparently believed that the starting up of the East Texas plants would shortly result in gasoline and some other refinery products being available in quantities comparable to offerings before the shutdowns became effective about the middle of August.

Brokers were endeavoring with some success to cover short sales to jobbers which were made in expectation of a one-fourth to 1-cent decline in the U. S. Motor prices effective last week. Several refiners, particularly in Texas, share the buyers' opinion that the opening up of the East Texas Field to an allowable production of around 400,000 bbls. daily ended the strong market of the past several weeks, with a reaction in prices certain.

In Oklahoma, the latest development in the Mid-Continent crude oil and refinery situation resulted in a dearth of trading the first of the week. Except in probably a half dozen cases, refiners in Oklahoma and Kansas are not in need of immediate outlets for their principal products, particularly gasoline. The continued shutdown of the flush fields in Oklahoma with some restriction of supplies in Kansas continues to be reflected in interrefinery buying of gasoline and other products and has absorbed the material not taken by regular company owned stations and jobber outlets.

Due to this situation, the great majority of refiners in the two States the first of the week were slow in accepting the lower prices quoted for material at inland Texas plants located in fields extending from East Texas to the Texas Panhandle. East Texas U. S. Motor gasoline was quoted as low as 3¾ cents the first of the week, but in Oklahoma the low quotation was 4¼ cents with a price range up to 5 cents. The Texas situation was also having a bearish effect on the kerosene and fuel oil markets, although prices were generally unchanged in Oklahoma.

Over Emphasize

Several market observers, the first of the week expressed the opinion that the importance of the East Texas reopening was being unduly emphasized on the bearish side by many of the marketing fraternity. It was impossible the first of the week to determine just how much crude oil would be available to the 20 or more plants located in the East Texas area. An official of one company with a plant in the field, predicted that the plants would not be able to operate at more than 65 per cent of their runs previous to the shut down. It was stated that the major pipe line buyers were offering to pay the posted price of 68 cents for crude oil and doubt was expressed that the smaller refinery buyers would be able to secure all the crude oil desired even if they were willing to pay the posted prices.

The expansion of East Texas refining has been largely due to an overproduction of crude oil which resulted in supplies being available at distress prices. Should the higher posted price continue with the present allowable production, it is evident that the refiners in the field would be compelled to obtain more for their products than they did before the shut down became effective. This is particularly true in the case of gasoline which with the ordinary skimming operation, has to bear the brunt of the operating expense plus crude oil cost.

With the quantity of gasoline available from East Texas refineries substantially less than it was before the shut down, coupled with the necessity of refinery operators obtaining more for their refined products due to higher crude oil costs, many market students believe that the next few days will show that the refined market will not be flooded with excess supplies and the market will then be stabilized until some new development makes its appearance. A continuance of the shut down of the Oklahoma City and Seminole areas of Oklahoma which limits

(Continued on Page 91)

REFINED MARKET BAROMETER

The reopening of the East Texas wells and refineries brought a reactionary trend in gasoline prices throughout the Mid-Continent and Middle West. Weakness in some of the other refined products in those areas was accounted for by the same development. In contrast to this situation the gasoline market in the eastern states which lagged behind the Mid-Continent during the latter's recent advances continued strong with a half cent advance in tank car quotations at coastal points. The low cold test grades of fuel oil, gas oil and distillate were generally firm. No important changes were reported in kerosene movement and prices. Steam refined stocks and bright stocks were reported strong in all areas. Other products unchanged.

Mid-Continent—Spot and future gasoline quotations weaken with lower quotations from inland Texas refineries. Kerosene slow. Except for high cold test grades, fuel oil, gas oil and distillate firm. Natural gasoline quotations lower. Steam refined stocks and bright stocks firm.

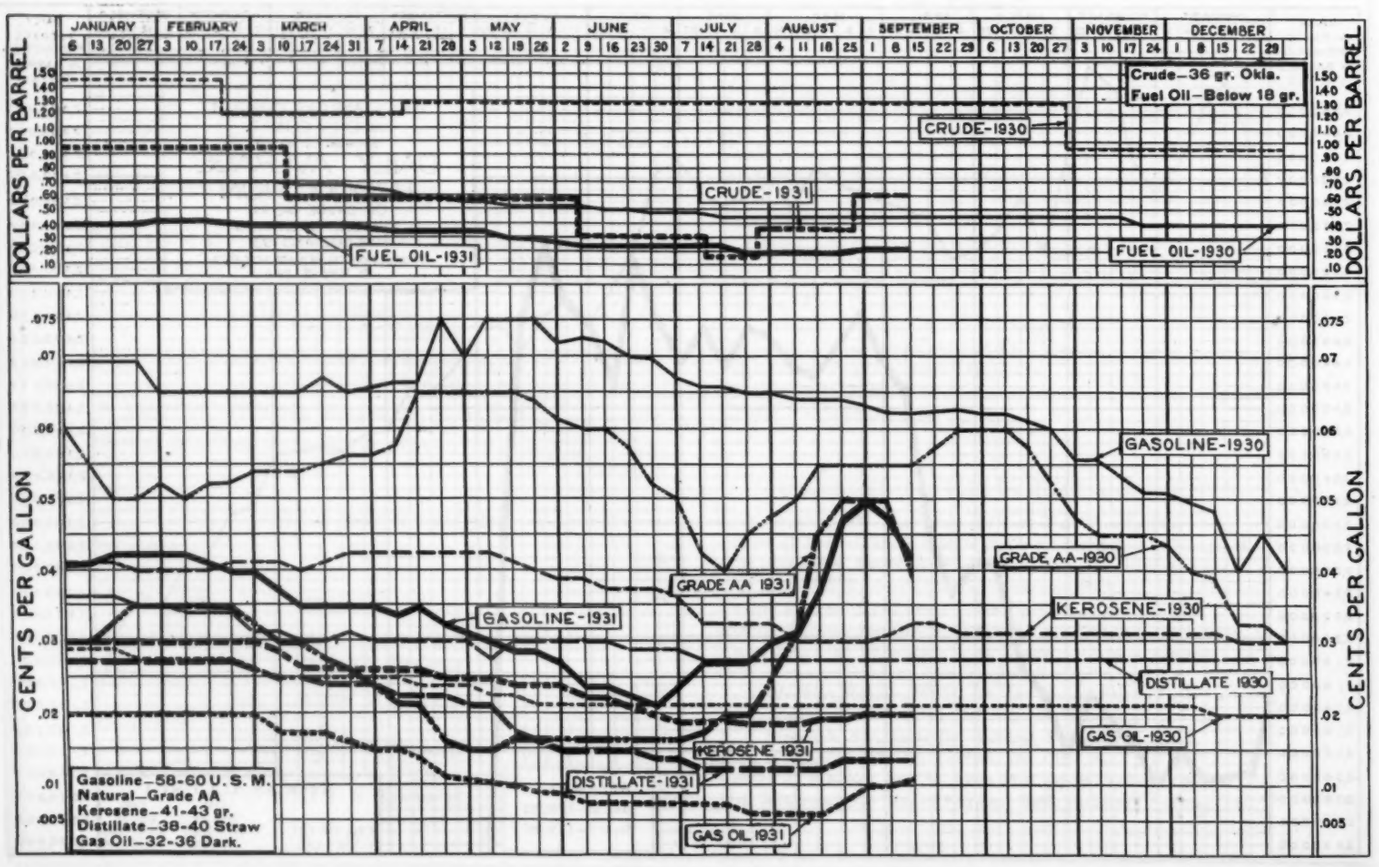
East Coast—Gasoline prices advance following heavy Labor Day demand. Kerosene unchanged. Fair movement of Bunker fuel and Diesel fuel. Cylinder stocks active at higher prices.

Pennsylvania—Gasoline and kerosene prices firm. Higher prices for steam refined stocks and bright stocks.

Chicago—Gasoline prices break from one-half to 1 cent a gallon following decision to reopen East Texas Field. Natural gasoline prices lower. Fuel oil and gas oil strong. Kerosene unchanged.

Gulf Coast—Gasoline less active. Fuels slow.

California—Quotations on refinery gasolines and natural gasolines narrowed by reductions in top prices. Market generally quiet.



East Texas First Day 415,875 Barrels

New Conservation Law Put Into Effect Saturday With Military Supervision. Allowable May Be Revised With Additional Wells

HOUSTON, Tex., Sept. 8.—Total production of the East Texas district Saturday is estimated at 415,875 bbls.

AUSTIN, Tex., Sept. 8.—The initial day's production of oil in the East Texas Field, as martial law was modified Saturday morning, was reported to military authorities as 362,825 bbls., though remaining reports for the first day were expected to bring the total to above 400,000 bbls., Gov. Ross S. Sterling was informed by Brig. Gen. Jacob F. Wolters, in command.

The new week saw the oil conservation law in operation for the first time and the reconvening of the legislature Tuesday noon with prospects that strong efforts will be made to have the legislature empowered to revise the law or to consider the creation of the Conservation Commission for its administration.

The separate Conservation Commission bill to divest the Railroad Commission of control over oil and gas was killed at the regular and first called session. A group of East Texas independent operators who fought the separate commission bill during the July-August oil session visited Governor Sterling during the past few days to urge its submission again at the new session, and pledged their efforts to its adoption now. They said they protested the "well limit" form of order under which the Railroad Commission reopened the field. In reassembling the lawmakers, Governor Sterling submitted only cotton acreage regulation for the session's work, but reserved in his proclamation the right to send up other subjects later.

Putting Order Into Effect

The order of Governor Sterling, incorporating the order of the Railroad Commission for the reopening of the East Texas Field at 7 a. m. September 5, under continued martial law, was promulgated by Brig. Gen. Jacob F. Wolters, martial law commander in the field, September 4. Partial evacuation of the remaining 800 troops also was ordered.

Governor Sterling's order, in effect a modification of the decree of martial law under which the field was totally shut down at 7 a. m., August 17, when it was producing an estimated 1,400,000 bbls. of oil per day, was conveyed to martial law headquarters by the adjutant general of Texas, Gen. W. W. Sterling.

Twenty-four employes of the State Railroad Commission, assigned to administer the new oil and gas conservation order issued by the commission putting into effect the new conservation law approved August 12, were directed to be at their posts when reopening of the field took effect.

Brig. Gen. Wolters, in promulgating Governor Sterling's order, incorporated the entire Railroad Commission order and added the requirement that effective September 6, each oil producer make a daily statement of the amount of oil produced on the previous day. It directed all purchasers, users and transporters of crude oil in the field to make similar reports as to the amount of oil stored, transported, purchased, received, loaded or used.

General Wolters verbally announced that martial law will continue for an indefinite period. He stated that only about 60 men of the military forces, together with a number of state rangers, were to be retained. Evidence of violations of the Railroad Commission's order will be transmitted to the commission and to the attorney general of Texas, General Wolters said.

Saved 17,000,000 Bbls.

After 19 days of complete shut down, during which time approximately 17,000,000 bbls. of crude oil was prevented from being run to storage and thrown upon the market, the East Texas district was reopened with approximately 1,825 wells given a daily allowance of 225 bbls. per well.

About 90 or 100 officers and men will remain in the field to co-operate with the 26 gaugers and 6 supervisors in the district in enforcing curtailment. The soldiers are now checking wells as to tubing and equipment, the proration order reading that all wells must be completed with tubing in the hole. Many of them have not had strings of tubing run in them, and no doubt these wells will have to be worked over and the tubing run to prevent trouble for the owners.

Violator Apprehended

One violator of the 225-bbl. limit has already been apprehended and his well shut in temporarily. A fine of $1,000 per day can be levied upon any violator of the curtailment order, and court proceedings may be instituted immediately against some recalcitrant operators to prove that the Railroad Commission means business. Many operators are not in favor of the 225-bbl. per well plan, many were against the potential plan, but whatever plan had been instituted there would have been some who would have disobeyed, or felt like disobeying it. Without troops in the field there no doubt would have been many who would have tried to evade the 225-bbl. limit, and would have opened their wells and produced to the maximum until discovered by the commission's men.

May Reduce Allowable

Those who consider the new order not practical look for another complete shut down to be ordered within the next two or three weeks, and unless production is held to 400,000 bbls. per day in the district, as the Railroad Commission has stated it will be, many newly completed wells, swelling the total number of producers each week, will gradually build up the daily potential, thereby necessitating a cutback of production per well to a lower figure. Under the present order cutting the daily allowable per well will be the only method applicable in keeping down production to the 400,000-bbl. mark, or to about half of the daily amount which was being produced when martial law was put into effect.

Only two refineries survived the shut down in East Texas throughout the period, but all of them have either resumed operations or are preparing to resume immediately, one of them having purchased 8,000 bbls. at 70 cents per barrel, a few days before the field was reopened. The Taylor Refining Co., the largest plant in the district, located at Tyler, was shut down on the morning the field was reopened, but the owners were preparing to start up again within the next two days.

Practically all oil had been drained from storage within the district, except lease storage, during the shut down, trunk lines running but little oil during the last week of the shut down, and running only around 104,000 bbls. per day the previous week. Now these trunk line companies and purchasers are scrambling for connections, taking over the entire gathering systems of small companies and independent operators, in some cases, and also taking all connections of these companies to insure as much oil as possible for their respective trunk lines. The Shell Pipe Line Co.'s 10-inch, completed during the shut down, will be another competitive purchaser.

Reports from 333 companies and operators in the district showed over 770,000 bbls. of oil in lease storage, some of this oil being used for the drilling of wells during the shut down or for drilling the wells started during the shut down.

Allowable Too Large Says Farish

Commenting on the new oil proration

(Continued on Page 103)

Oil Production Order for East Texas

Railroad Commission Allows 225 Bbls. per Well but Reserves Right to Repeal or Modify at Any Time

AUSTIN, Tex., Sept. 5.—The full text of the East Texas order issued by the Railroad Commission follows:

"Special order fixing rules and regulations for the prevention of physical waste of crude petroleum oil and natural gas in what is known as the East Texas Field, composed of Upshur, Smith, Rusk and Gregg Counties, Texas.

"Whereas, the recently adjourned special session of the Forty-second Legislature enacted a comprehensive amendment to the oil and gas conservation laws of the State of Texas, re-defining waste of crude petroleum oil and natural gas and prescribing the powers of the Railroad Commission of Texas in preventing waste thereof, and;

"Whereas, immediately upon the adjournment of said first called session of the Forty-second Legislature, this Railroad Commission promulgated an order directing that a special hearing be held at Austin, August 25, to determine what field rules and regulations, if any, should be prescribed to carry out the policies underlying the new legislation in that field. Pursuant to statutory notice, this hearing was held and evidence was offered tending to show that waste of crude petroleum oil and natural gas is now taking place or was taking place prior to and at the time of the shutdown of said field, August 17, and that waste is threatened in the respects hereinafter mentioned and that the rules and regulations hereinafter prescribed will prevent or tend to lessen the waste of oil and gas.

New Rules

"In the recently enacted legislation, the Legislature provided that waste shall not be construed to mean 'economic waste'; and further that the Railroad Commission 'shall not have power to attempt by order or otherwise directly or indirectly to limit the production of oil to equal the existing market demand for oil.' In view of this legislative mandate the Railroad Commission has deemed it improper to consider any evidence at the hearing which convened August 25 and was concluded August 28, dealing with economic conditions in the oil industry. Accordingly, at the hearing mentioned no evidence was heard or considered dealing with the price or with the limitation of production with a view of stabilizing or raising the price of oil.

"On consideration of all of the evidence adduced at said hearing the Railroad Commission is of the opinion and so finds and orders that the following rules and regulations are reasonable and necessary and will prevent, or greatly minimize, the waste of oil and natural gas in the East Texas Field.

"1. That the present producing areas and extensions thereof in the counties of Gregg, Upshur, Smith and Rusk shall constitute and be known as the East Texas Field.

Spacing Wells

"2. It appearing from the evidence that the spacing of wells in said field, under the terms and provisions of the Railroad Commission's oil and gas conservation Rule 37, threatens to cause actual physical waste due to the too rapid dissipation of gas energy in the production of oil and also due to the too rapid encroachment of water, in the interest of preventing actual physical waste of oil and gas, it is desirable to modify Rule 37 as applied to said field. Therefore, it is here ordered by the Railroad Commission that said Rule 37, in so far as it applies to the East Texas Field, be modified and the following rule is provided:

"'No well for oil or gas shall hereafter be drilled nearer than 660 feet to any other completed or drilling well on the same or adjoining tracts of land and no well shall be drilled nearer than 330 feet to any property line; provided that the commission, in order to prevent waste and to protect vested rights, shall and will grant exceptions permitting drilling within shorter distance as above described on application filed, fully stating the facts, statutory notice thereof having first been given to all adjacent lesses or operators thereof; and provided further that this modification of Rule 37 shall not be applied against wells already begun or offsets thereto.'

"It is not the intention of the Railroad Commission to repeal Rule 37 by this order, but only to provide a special rule applicable only in said East Texas Field.

Tubing Regulations

"3. All wells hereafter completed in the East Texas Field shall be equipped with and produced through tubing of not more than 2½ inches in diameter, and be bottomed not higher than the top of the producing oil sand. All wells heretofore completed and not tubed shall be tubed in accordance with the provisions of this order immediately after this order becomes effective. All flowing wells in the East Texas Field also shall be equipped with adequate choke devices.

"4. Evidence having been offered showing that there is a water table underlying the western side of the East Texas Field and that some wells now are producing salt water, and that there is a threatened further intrusion of said salt water, therefore it is here ordered by the commission that within five days after this order becomes effective, the owners of every well in the East Texas Field now producing salt water shall plug it back by filling the hole with cement to such a point that the bottom of the hole will be at least 10 feet above the water table, if the thickness of the sand will permit, and if any well hereafter shall produce salt water the owner thereof immediately shall plug it off in like manner. All plugging work required hereunder shall be subject to the supervision and approval of the deputy oil and gas supervisor in charge. It shall further be the duty of the deputy oil and gas supervisor to make constant investigations to determine what wells are producing salt water and to see that the

(Continued on Page 101)

Phillips Pipe Line From Borger Carries Variety of Products

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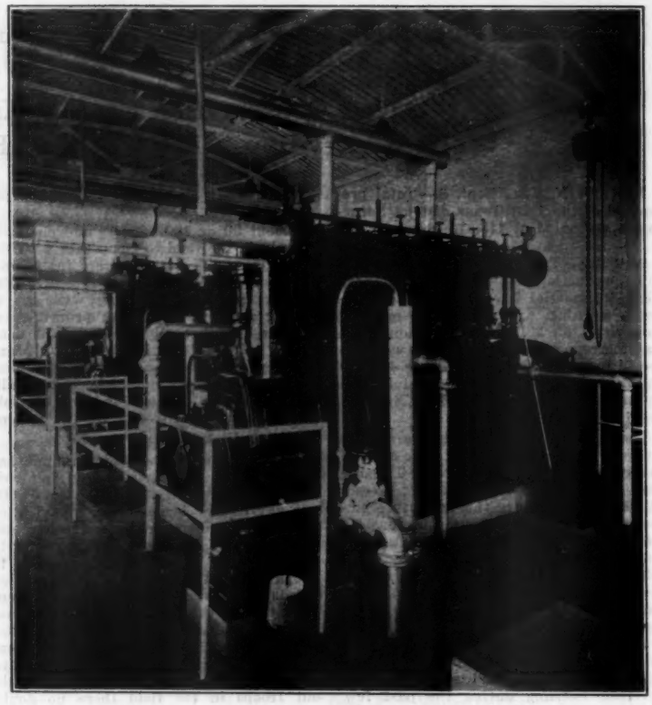
By Thomas F. Smiley

Actual operation of the 681-mile 8-inch line of the Phillips Pipe Line Co. from Borger, Tex., to St. Louis, Mo., has demonstrated the soundness of conclusions reached by engineers of the company who made practical tests with an experimental line before construction work began. Natural gasoline, butane, refinery gasolines, and possibly liquid propane will be slugged through from the Borger Field in the Texas Panhandle, where the Phillips Petroleum Co. has large producing properties besides a refinery and plants for extraction of natural gasoline. The pipe line affords an outlet for both refinery products and natural gasoline.

The St. Louis terminal, with its tanks of the various types required for storage, shipping and blending purposes; its pumps for moving the different products from one tank to another at the terminal or to loading racks; its laboratory, warehouse, dwellings for employes, office building and other needed structures, is receiving about 15,000 bbls. of material from Borger daily. The line has an estimated capacity of 22,000 to 24,000 bbls. This can be increased to 30,000 bbls. by establishing additional pump stations at intermediate points already selected along the line. Valves were installed at these pump station sites when the line was built, so that enlargement of capacity will be a relatively simple matter. Need of greater capacity is expected to arise from growth of Phillips Petroleum Co. refinery output and natural gasoline production in the Borger area and also from the requirements of other Texas Panhandle shippers availing themselves of the Phillips line.



Interior of Paola, Kans., station, showing engines.

Besides the St. Louis terminal two others, equipped for blending and shipping materials from Borger, have been established at other points. One of these is at Wichita, Kans., and the other is at Kansas City, Kans. The 8-inch line passes Wichita, but to reach the Kansas City blending terminal a 6-inch branch line 60 miles long was built.

Site Contains 288 Acres

The ground bought by the Phillips Pipe Line Co. as a site for the St. Louis terminal embraces 288 acres. This land is across the Mississippi River from St. Louis in Illinois, about 3 miles south of East St. Louis. It is said to have cost in the neighborhood of $300,000. In addition to existing outlets for products from the Phillips terminal the river offers a ready one if conditions should indicate the wisdom of using it.

Among the tanks at the terminal are

* * * *

eight of 80,000 bbls. capacity of the floating-roof type. These are for butane-free natural gasoline, refinery gasoline or any other product whose vapor pressure does not exceed 12 pounds to the square inch at 100° F. These eight tanks will be used principally for raw pipe line products.

Two other tanks of the floating-roof type have a capacity of 20,000 bbls. each. These are used for blending different grades of motor fuel from the raw material stored in the eight other floating-roof tanks, and might be designated as finished-product tanks.

Four 20,000-bbl. spheroidal tanks are provided for high vapor pressure products, including the AA grade natural gasoline, which has a vapor pressure of about 26 pounds absolute or 11.6 gauge at 100° F. This new addition to the tank family was designed in accordance with the fundamental law of gravity that any given volume of liquid contained in a space of stated height will have approximately the same external bursting force through a vertical section. In an ordinary tank this bursting force is resisted by the vertical shell. While the roof and bottom

* * * *

of the ordinary tank contain almost as much metal as the shell they take none of the stresses.

In the spheroidal tank the bottom, shell and roof form almost a continuous curve, with the result that much of the bursting force is transferred to the roof and bottom and all the metal in the vessel serves effectually to resist stresses. This type of tank is said to have been designed by studying the shape assumed by a flexible container, such as a toy balloon, after being filled with water, subjected to internal gas pressure and then placed on a flat surface.

Six Butane Storage Tanks

Six butane storage tanks of 7,550 bbls. capacity each have a diameter of 30 feet and a height of 90 feet. Their appearance is not unlike that of a small dirigible balloon standing on end. These tanks are built to withstand a pressure of 100 pounds to the square inch.

Five 10,000-bbl. floating-roof tanks are provided primarily for Ethyl Gasoline, though they may be used for regular motor fuel.

There are five bulk loading tanks, each

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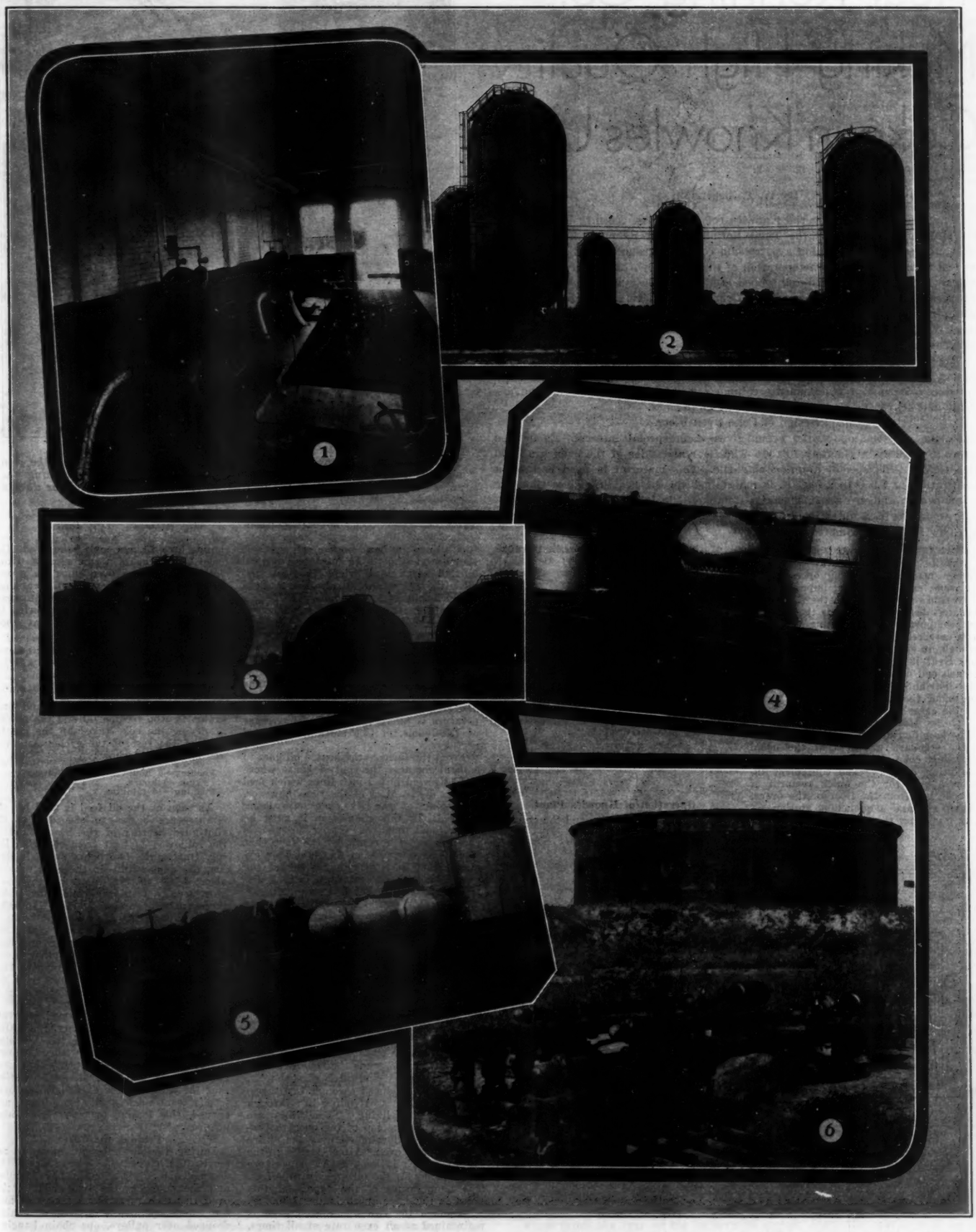
with a line carrying its product to a truck loading dock for distribution through the St. Louis district. Nine electric-power centrifugal pumps of varying sizes and stages move the products to different points in the terminal as the requirements of operation may direct. A 50-car spot loading rack on a spur of the Terminal Railway of St. Louis gives the company outlets through all railroads entering St. Louis. It is planned to enlarge this loading rack later. Six lines to the rack make it possible to load that number of products at one time.

A brick building houses the laboratory for control and inspection of products. The tests made in this laboratory include those for distillation, vapor pressure, gravity, color and all general testing work involved in keeping the products up to specifications. An office building, warehouse, truck loading depot and garage are other important structures. A tank car maintenance department takes care of repairs, painting, etc. Ten modern 5-room dwellings provide homes for workmen and the superintendent. An elevated tank serves as a reservoir for the water piped

(Continued on Page 32)

General view of tanks at St. Louis terminal, with the laboratory in the right foreground and the loading rack and ethyl plant at the left.

INTERESTING SIGHTS AT PHILLIPS PIPE LINE CO. TERMINALS AND PUMP STATIONS



1. Pumps in the Paola, Kans., pump station. 2. Butane storage tanks, St. Louis terminal. 3. Spheroidal tanks for high-pressure products, St. Louis terminal. 4. Kansas City, Kans., terminal. 5. Paola pump station. 6. Transfer pumps and floating-roof tank, St. Louis terminal.

Tidal Refining Co. Making High Quality Coke in Knowles Unit

* * * * * *

By W. T. Ziegenhain

As a result of installing the Knowles coking process, recently introduced to the Mid-Continent area by the Tidal Refining Co. at its plant in Drumright, Okla., the company is making a petroleum coke of unusually high fixed carbon content besides benefiting the operation of the other departments of the refinery.

The Knowles process reduces topped crude and residuum from the tube and tank cracking stills to a dense coke of firm cell structure. It produces as overhead streams an appreciable yield of gasoline distillate, which has a high antiknock value and recovers all of the remaining gas oil in the original charge. This gas oil, in turn, is cracked to produce a gasoline of high antiknock value.

The essential units of the plant include a pipe still for preheating the incoming oil, a battery of six refractory lined Knowles coke ovens where the oil is reduced to coke, a fractionating column for separation of the gasoline distillate and heavy gas oil, and coke handling equipment.

Design of Coke Oven Floor

Unique construction of the ovens gives them special interest. Each oven covers a space approximately 10'x30'. The floor and sides of the oven are lined with tight fitting special alumina clay tile. This material is used because a temperature of 2,350 to 2,400° F. is maintained on the hearth. These tiles are 1 foot square and are set in mortar. A broken tile is easily replaced and but little wear has been noted in the hearth within six months' operation. The cost of a new floor approximates $600.

The accumulation of coke on the floor of the oven seals any unfilled cracks in the tile, and this along with the light vacuum maintained during operation of the ovens, makes it almost impossible for oil to find its way through the floor. Immediately below this floor is the combustion compartment for heating the oven, so if a small volume of oil does come through, it simply burns as part of the fuel. Heat is applied by 10 gas burners at each end of the oven. Ten 8"x6" tunnels distribute the heat. A down draft flue under the center of the battery carries the gases to a common stack.

Handling of Coke

The handling of the coke follows closely the standard practices of the usual by-product coke plant for the destructive distillation of coal. The equipment includes a ram for the quick removal of the coke bed from the floor of the ovens, a dump car and a quenching station.

In preparing the coke to meet market demands the company is segregating it into four grades by means of mechanical classifiers including lump, egg, nut and breeze.

* * *

Yields From Operation

Yields obtained from the unit over a period of a month, during which 91.81 per cent of 11.5 gravity topped crude and 8.19 per cent of 6.5 gravity cracked tar were charged, are shown below:

Yields—	Gravity	Per cent by weight
Gasoline	44.0 A.P.I.	7.93
Gas oil	20.9 A.P.I.	55.02
Gas	1.0 Sp.Gr.	19.63
Coke	1.2 Sp.Gr.	16.72
Loss		.70
Total		100.00

Operation of Knowles Plant

As the fuel oil bottoms and the cracked fuel oil are produced on the refinery side they are run hot to an insulated, vertical 10'x30' surge tank which in turn supplies the coking ovens. In this tank a liquid height of approximately 15 feet is maintained, the oil being continuously withdrawn off the bottom.

The temperature of the oil in the surge tank will vary as the ratio of the two oils in the blend varies but it lies within a range of 230 to 600° F. This oil is picked up by a reciprocating pump and is charged through a Badger preheater and single-pass pipe still where its temperature is raised to 800° F. An average of 1,500 bbls. of this stock is processed per day.

From the furnace the heated oil goes to a manifold near the control house where it is diverted into 1-inch lines which feed the six ovens. Most of the time, however, only four of the six ovens are being charged. In this connection it must be understood that the coking process is continuous as a result of the fact that each oven operates on an eight-hour cycle, 1 hour and 20 minutes behind the oven ahead. Thus each oven is in a different stage of the cycle.

The status of the battery at any time will usually show one oven, having just been cleaned, receiving oil at the start of a new run. The next three ovens are in full operation reducing the oil while the fifth and sixth ovens are in different stages of "drying." That is to say, the oil has been shut off and the coke bed is being heated to drive off all the volatile constituents.

Cycle of Operations

Tracing more carefully the operation of one oven, the cycle would approximate the following: Assume that one oven has just been cleaned and oil is started to it. The oil is introduced through two three-quarter inch lines extending just through the refractory lining. These lines are spaced along the top of the oven to provide an even flow of oil over the entire floor of the oven. After striking the hearth, which is kept at a temperature near 2,400° F., the oil quickly vaporizes. The temperature of the vapors at this point in the cycle approximates 1,300° F.

Although the fire under each oven is maintained at an even rate at all times, the temperature of the oven decreases as more oil is introduced. This is due to the insulating effect of the coke layer as it builds up on the floor of the oven. This coke layer reaches a thickness of 6 to 8 inches before the oven must be opened for cleaning. It takes about five hours and 20 minutes for the coke bed to reach this thickness and during this period the oven temperature will decline at about the following rate:

After 1 hour	1,000° F.
After 2 hours	940° F.
After 3 hours	890° F.
After 4 hours	840° F.
After 5 hours	810° F.

At this point it has been found preferable to stop feeding oil and the process of drying the coke takes up the greater part of the rest of the cycle. An average cycle would show:

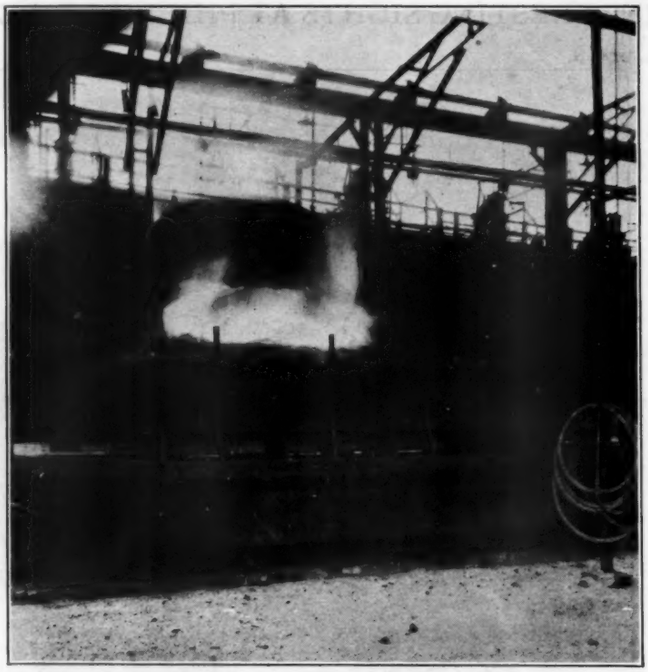
Feeding—5 hours and 20 minutes.
Drying—2 hours.
Pushing—40 minutes.

As soon as the oil feed is shut off the temperature begins to rise due to the continued heating of the hearth and to the radiation of heat from the oven lining. During the two hours spent in drying, the temperature in the oven rises to about 1,100° F. At this point the operator usually tests the conditions inside the oven by opening a 10-inch flap valve in the vapor riser. He allows the vapors to vent to the air and at the same time closes a second valve in the riser which keeps any vapors from the other ovens from escaping or mixing with air. This is necessary since the vapors from all ovens enter a common header which is held under a partial vacuum.

A jet of live steam is opened into this riser and it pulls out any remaining vapors from the oven. If the escaping steam is badly discolored with oil vapors the oven is put back on stream, but usually the color is soon lost, an indication that the oven may be opened. The steam jet is continued until the doors are opened, this lasting for about five minutes.

Pushing the Coke

During the steaming an operator removes the clay seal from around the doors. This requires but a few minutes and the doors at the two ends of the oven then are raised by an electric motor which operates a system of chains dropped over pulleys, one chain hanging over each of the 12 doors. The chains hang free at all times, only the pair over the oven to be cleaned being fast-



The doors of the Knowles coke oven have just been opened and the ram will soon start pushing the burning bed of coke into the quenching car shown in the picture. Note the method of raising the doors and the design of the car.

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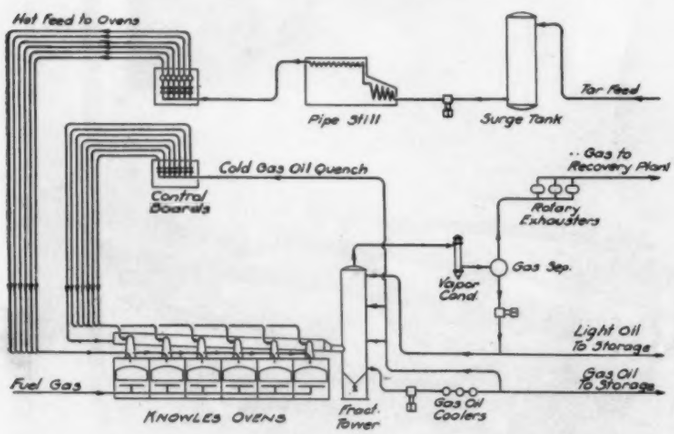


FLOW DIAGRAM
KNOWLES COKE OVENS

Flow diagram showing the path of the tar feed through the still and into the six Knowles ovens. The control of the process is concentrated at the cold gas oil and the hot feed manifolds.

ened in place. The doors slide upward and as soon as they are raised the coke bed ignites.

The coke is allowed to burn for a few minutes to rid it of the fine carbon dust and flocculent carbon suspended from the ceiling and sides of the oven. The operator is able to judge when the coke has burned itself clean. He then starts the ram through the oven.

This ram is mounted on a trolley car which runs on a track back of the series of ovens. The ram, similar in construction to those used in by-product coke plants, is pushed through the oven by a 45-horsepower motor geared low. The coke bed piles up ahead of the ram drag and then drops into the quenching car. This is a two-compartment, steel, trolley-driven dump car with a floor that slopes to one side. Each compartment is fitted with four doors along the low side for dumping. The car has sufficient capacity to hold three times the volume of coke normally removed from one oven but this has been found advisable since it promotes safety and makes it easier to quench the burning mass.

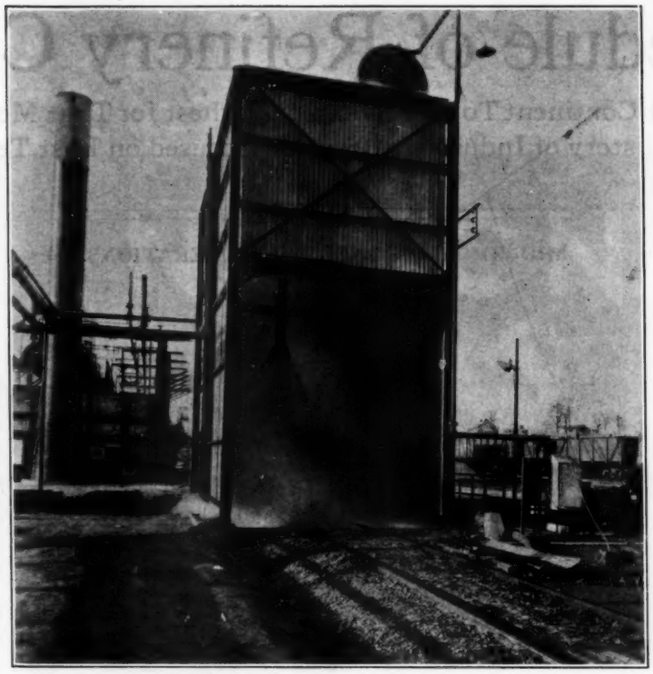
After the car is run to the quenching station a quick-opening valve pours a heavy spray of water over the top of the coke and another spray floods the floor of the car from the side. The car is moved through these two sprays and then the water is shut off. Care is taken not to use any more water than is necessary to extinguish the fire.

The quench car then is returned to the front of the oven. Any small lumps of coke that spill over the ram onto the walkway are shoveled into the car and it is then returned to the quenching station. By that time the main mass of coke is dry and still very hot. It receives a second quenching, usually a light one, as the final step before dumping it for classification and loading into cars for shipment.

Quenching Station

The quenching station is a transite covered steel frame building, long enough to accommodate the quenching car. The building is open at the two ends. On top of the building, which is approximately 28 feet high, is mounted a 5'x15' horizontal tank supplying the water for quenching.

The water which drains from the coke car is recovered in a sump and is pumped back up into the tank by means of a small electrically driven centrifugal pump. After the coke has been quenched and all of the water has evaporated from the mass, the car is run to a point beyond the quenching station and one by one the doors of the car are opened to allow the coke to fall onto a rubber conveyor belt which takes it to an elevated hopper near the railroad siding. There a coke classifier separates the lumps from the rest of the production. In addition, the company now has under construction a series of classifiers which will separate the aggregate into the three other grades mentioned. After separation, another conveyor loads the coke onto gondola cars for shipping. The conveyor for the lump coke is lowered nearly to the level of the car floor at first in order to avoid fracturing the lumps. As the car is loaded this conveyor is gradually raised.



Quenching station where the two sprays of water quickly extinguish the fire of the burning coke as it leaves the oven.

Quality of Coke

The quality of the coke will vary slightly with any material change in the quality of the charging stock, but a typical sample shows the following characteristics:

Knowles Oven Coke

Specific gravity—apparent	1.2
Specific gravity—true	1.8
Moisture, per cent	.6
Fixed carbon, per cent	94.8
Ash, per cent	1.8
Volatile matter	2.8

Recovery of Gas Oil

Up to this point the operation of the ovens has been discussed from the standpoint of the manufacture of a high grade of petroleum coke but an equally important function of the Knowles unit is to recover the gas oil from the heavy fuel oil to be used as charging stock for the cracking units. The operation of the unit will be described from this angle.

The six ovens are set side by side each having a vertical riser or ascension pipe directly connected into a common vapor header. During the time the oven is on stream a vacuum of one-half to three-quarter inch water is maintained on the vapor system. This is automatically controlled by an "Askania" regulator. The purpose of the partial vacuum is to keep the oil vapors from leaking through the tile floor and sides of the oven or around the edges of the doors, and to provide mobility to the vapors. The vacuum is produced by three Root exhausters.

Inject Cold Gas Oil

At the point where each vapor riser connects into the common header a jet of cold gas oil is introduced to cool and help condense part of the vapors. Another stream of cold gas oil is pumped into the upper end of the inclined header to act as a second cooling medium for the vapors coming from the ovens.

Approximately 100 gallons of gas oil per oven per minute is received into the header from these two sources and the temperature of the incoming vapor is thus reduced from about 750° F. in the riser to 500° F. in the header.

The header, 4 feet in diameter and 70 feet long, is suspended over the ovens and slopes toward the 8'x40' fractionating tower at the end of the battery. Another jet of gas oil is introduced into the header at the point of its entry into the base of the tower.

By the introduction of cold gas oil into the vapor system at the various points mentioned it is possible to augment the control on the partial vacuum in the individual ovens. By increasing or decreasing the volume of gas oil injected into each vapor line as it enters the header, the extent of condensation may be increased or decreased and in turn the vacuum on that particular oven may be varied as desired. This control is auxiliary to the main pressure control which holds the reduced pressure within a range of one-sixteenth inch of water.

Fractionator Operation

Because of the cooling effect of the gas oil, the temperature of the oil in the base of the fractionator is near 450° F.

The fractionator has two compartments, the arrangement permitting a cut of gasoline distillate to be taken overhead while the gas oil is withdrawn off the bottom. From the top of the fractionator the gasoline distillate vapors and gas pass into a Braun water-cooled condenser and thence through a separator to storage. The fractionator operates under partial vacuum of 2 to 6 inches of mercury and is controlled by pumping back a portion of the overhead stream.

Quality of Distillate

The gasoline distillate has a naturally high antiknock value. It has a yellow color and at present is being treated and rerun. Laboratory tests on a characteristic sample of this distillate appear below:

Tests on Gasoline Distillate

Gravity	47.6
I.P., °F.	160
10 per cent	226
20 per cent	255
50 per cent	326
90 per cent	444
Endpoint	490
Recovery	97.5

The gum content of this product ranges between 300 and 350 grams when 100 cc. of the distillate is evaporated in a copper dish when using air.

Quality of Gas Oil

The gas oil which is taken off the bottom of the fractionator varies with the kind of charging stock being run but

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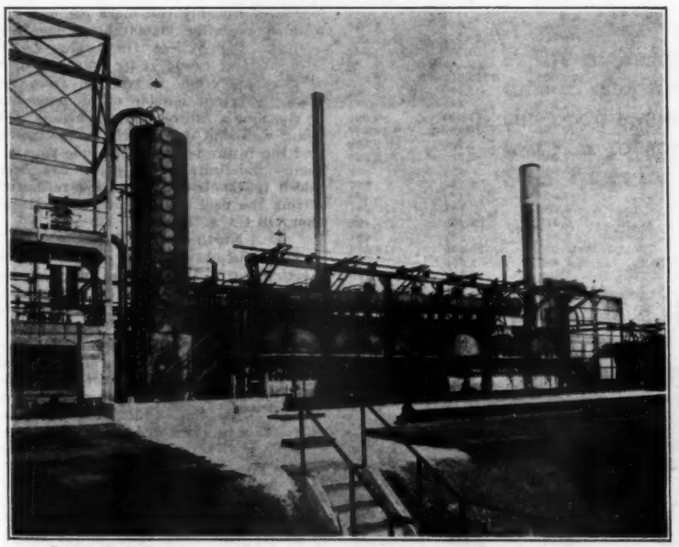
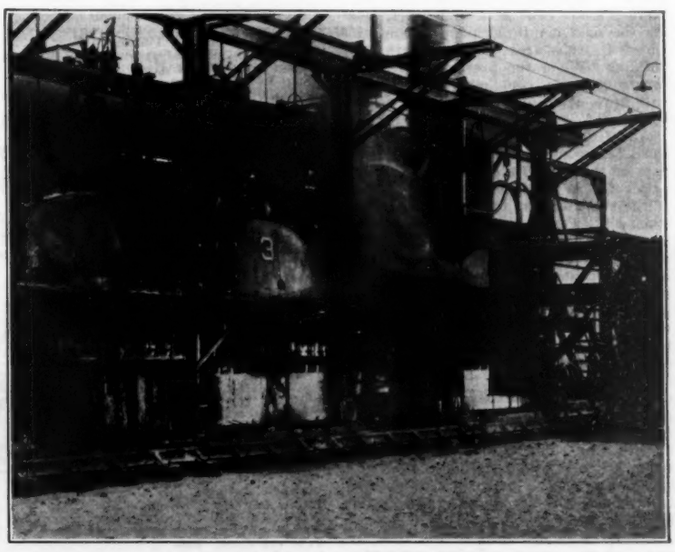


A general view of the Knowles coking unit at the Tidal Refining Co.'s plant in Drumright, Okla. The six ovens, the common vapor header and the tower may be clearly seen.



View from the rear of the battery of ovens. Here the ram is well on its way through the oven. Note the trolley and track which permits the one ram to service the six ovens.

High Schedule of Refinery Crude Runs

Mid-Continent Total September Highest for That Month in History of Industry. Attention Focused on East Texas

By W. T. Ziegenhain

Mid-Continent refinery crude runs will be practically as high during September as they were in August, despite the declining demand for gasoline and the continued shut-in of the Oklahoma City and Seminole Fields in Oklahoma. They will exceed the refinery runs of a year ago by 89,000 bbls. and will be the highest for the month of September in the history of the industry. This month's schedule is exceeded only by those for July and August of this year, both of which are but a few thousand barrels more daily.

REFINERY REPORT LATE

Owing to the Labor Day holiday, the weekly report of the American Petroleum Institute showing crude runs to stills, gasoline stocks and gas and fuel oil stocks could not be compiled in time for publication in this week's issue.

The decrease in the Mid-Continent has been occasioned by the shutting down of several refineries due to a crude shortage and other curtailing runs, but this has not developed to the extent many expected it to a month ago when the Oklahoma City and Seminole Fields were first shut in by martial law. A survey of conditions at that time showed that more than 80 per cent of the Oklahoma refineries, based on actual runs, would be able to continue their regular schedules for six months or more by taking some oil from storage. Many of the larger units are getting sufficient stripper oil and have enough in storage to allow them to run almost indefinitely.

The new refineries in the Oklahoma City area continue to be hardest hit for crude. There are six plants in this area, all of which were built during the development of the Oklahoma City Pool. Now only two of these plants are operating and only one is on a regular schedule.

East Texas Operations

The East Texas plants have been the greatest factor in building up and maintaining crude runs at a high level. During the past month 11 plants have been added in this area and four are now building. When the present program of construction is completed, East Texas will have a refining capacity of 80,000 bbls. daily.

All of these plants were located in the East Texas area in order to take advantage of the fact crude was plentiful and prices for it were relatively low. Most of the capacity was built or in operation when East Texas oil was selling at 10 to 20 cents a barrel. With the field now under a program of proration at an allowable substantially under its potential production, and only about one-third of its actual production the day before the wells were shut in under martial law, it is possible that there will be a shortage of crude in the East Texas area in the same manner as there is a shortage of oil in the Oklahoma City Field. These plants will be expected to take the oil ratably as it is produced, and since there is pipe line capacity and rail capacity sufficient to handle more than double the expected production under proration, there will be no backing up of crude in the field.

Storage is being built in the field by many of the major refining companies having pipe lines running to distant refineries. The assumption is that these companies will take all of the oil that is made available and will store it in the field and run it to their plants at some future date. These tanks will allow them to take any distress crude that might be offered and this factor will be the principal means of maintaining the present price level in the East Texas Field. It will also be the greatest handicap to the East Texas refiners if they expect to secure cheap crude.

MID-CONTINENT REFINERY OPERATIONS

CRUDE RUNS TO STILLS

	1929	1930	1931
January 1	508,550	535,460	478,795
February 1	506,800	519,355	470,125
March 1	514,950	531,500	449,634
April 1	530,530	555,250	407,391
May 1	577,500	574,300	510,640
June 1	583,030	572,250	567,915
July 1	565,800	548,475	588,840
August 1	555,250	526,400	590,545
September 1	552,300	498,710	588,105
October 1	544,720	518,800	.....
November 1	545,473	506,700	.....
December 1	540,630	478,360	.....

OPERATIONS BY DISTRICTS

	September 1—			
District—	Daily crude capacity (bbls.)	Daily crude runs (bbls.)	Runs to stills Aug. 1	Sept. daily decr.
Arkansas	47,800	31,400	30,500	*900
Kansas	150,000	107,600	110,700	3,100
North Louisiana	54,300	36,325	35,425	*900
Oklahoma	335,300	193,945	191,500	*2,445
North Central Texas	280,250	162,235	168,130	5,895
West Texas	148,900	56,600	54,290	*2,310
Total	1,016,550	588,105	590,545	2,440

*Increase.

On the other hand, some of them have their own production or are affiliated with producing companies in such a manner as to benefit from that fact. In one instance the refinery pays the producer on the basis of what is received for the refinery products. Although there is an inducement to get as much for the products as possible, the refinery is protected at all times and there is a tendency to shade prices. In other instances it has been possible for the refinery to buy its crude below the posted price in the field. A contract was offered during the past week in which the producer agreed to supply East Texas crude for a year or more at 40 cents a barrel and in reasonably large quantities. While the conditions surrounding the offer are not known other than what has been stated here, the assumption follows that some crude may soon be available below the going market which will again cause a reduction in the Mid-Continent refinery market.

Another factor which must be considered during the next month is that of opening up the Seminole and Oklahoma City Fields. Governor Murray has already devised a plan under which these fields will be allowed to produce, and it is possible that within the next two weeks several refineries which are now shut down or have curtailed operations will again operate.

Oklahoma

Oklahoma plants will run 193,945 bbls. of crude daily during September, which is slightly more than was run during August. It is obvious that no serious handicap has been placed on the refining industry as a whole as a result of shutting down the Seminole and Oklahoma City Fields. However, it has worked a serious hardship on a few. The Century Petroleum Co. will not operate its plants in Oklahoma City and Tulsa as a result of not having a sufficient crude supply. Similarly the York Refining Co. plant at Oklahoma City which was recently remodeled will remain shut down because of not having a crude supply. Except for the Black Gold and the Capital City Refining Co., the schedule of runs of the plants in the Oklahoma City area will be irregular. The Altitude Petroleum Corp. has sufficient crude to maintain a schedule of 700 bbls. per day for the month but will probably run more per day and shut down after 20,000 bbls. has been refined. The Wilcox Oil & Gas Co. is also short of crude at its plant at Bristow. Some crude is received from the local fields but outside oil is necessary to continue a full operating schedule. The plant was shut down early in the month and the future schedule of crude runs remains indefinite. One plant has been added to the list of operating refineries during the past week, that of the Marathon Oil Co. at Boynton.

North Central Texas

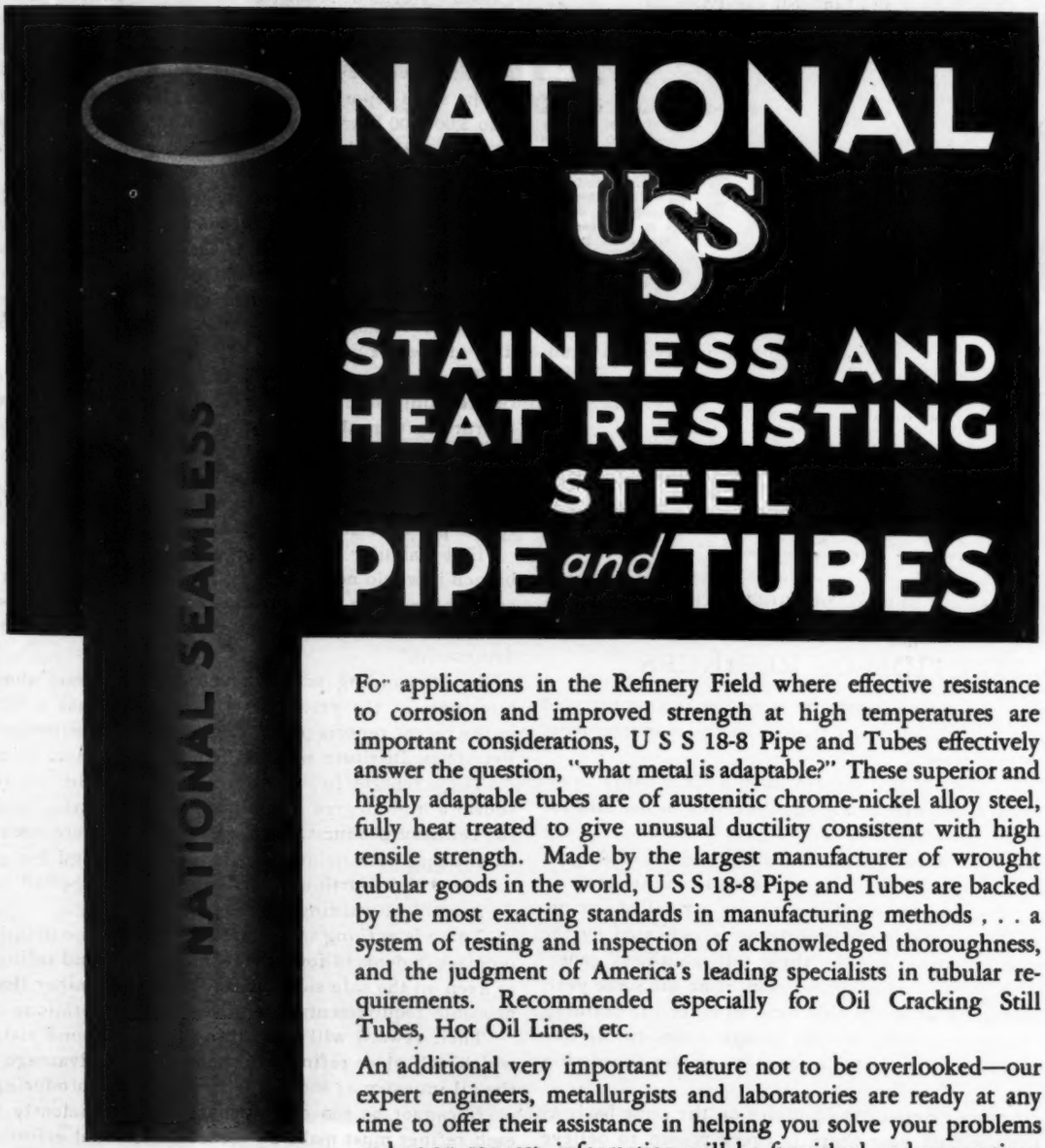
Numerous changes have occurred in the North Central Texas group of refineries during the past month. New plants have been completed and await developments in the control of the East Texas production to find out whether they will receive an adequate crude supply. Despite the addition of several plants, the total runs for the north central group for September will be 6,000 bbls. under those for August. This is accounted for by the shutting down of several large plants in the East Texas area due to a crude shortage. How long these will remain down will depend upon developments there as was outlined previously. Included in the list of plants shut down early in the month were the Beacon Oil & Refining Co. and the Central Refining Co. at Friars Switch and the Overton Refining Co. plant in

(Continued on Page 101)

REFINERY OPERATIONS IN OKLAHOMA
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
Altitude Petroleum Corp., Oklahoma City	2,000	700	1,600
Anderson-Prichard Oil Corp., Cyril	5,000	4,000	4,000
Barnsdall Refineries, Inc., Barnsdall	6,000	3,500	3,500
Barnsdall Refineries, Inc., Okmulgee	10,000	6,500	6,500
Bell Oil & Gas Co., Grandfield	4,500	2,000	2,000
Black Gold Refining Co., Oklahoma City	1,500	700	800
Capital City Refining Co., Oklahoma City	2,500	600	800
Century Petroleum Co., Tulsa	500	(*)	(*)
Century Petroleum Co., Oklahoma City	2,500	(*)	1,200
Champlin Refining Co., Enid	16,000	9,000	14,500
Citizens Refining Co., Seminole	1,000	(*)	(*)
Continental Oil Co., Sapulpa	10,000	1,500	1,500
Continental Oil Co., Ponca City	30,000	24,775	15,000
Cushing Refining & Gasoline Co., Blackwell	1,800	1,500	1,500
Cushing Refining & Gasoline Co., Cushing	3,500	2,500	2,500
Deep Rock Oil Corp. (Shaffer), Cushing	10,000	10,000	10,000
Eason Oil Co., Enid	5,000	2,500	3,000
Empire Oil & Refining Co., Cushing	5,000	(*)	(*)
Empire Oil & Refining Co., Okmulgee	4,000	4,000	4,000
Empire Oil & Refining Co., Ponca City	12,000	10,000	10,000
Garber Refineries, Inc., and Omar Refining Co., Garber	3,500	2,200	2,500
Globe Oil & Refining Co., Blackwell	7,500	7,000	6,500
Globe Oil & Refining Co., Cushing	15,000	(*)	(*)
Gulf States Corp., Oklahoma City	3,500	1,000	800
Illinois Oil Co., Cushing	3,000	(*)	(*)
Imperial Refining Co., Ardmore	5,000	(*)	(*)
Johnson Oil Refining Co., Cleveland	6,000	4,500	4,400
McCullough Oil Co., Oklahoma City	2,000	(*)	(*)
Mid-Continent Petroleum Corp., West Tulsa	40,000	20,000	18,500
Marathon Oil Co., Boynton	2,500	1,500	(*)
Marathon Oil Co., Bristow	5,000	3,200	4,000
Morgan Development Co., Tonkawa	3,000	(*)	(*)
Peppers Gasoline Co., Covington	1,000	670	700
Phillips Petroleum Co., Okmulgee	5,000	5,000	5,000
Producers Oil Co., Bristow	2,500	1,400	1,400
Producers & Refiners Corp., West Tulsa	6,000	4,500	4,500
Pure Oil Co., Ardmore	5,000	2,500	2,500
Pure Oil Co., Muskogee	9,000	8,500	7,500
Rock Island Refining Co., Beckett	3,500	3,200	3,250
Sinclair Refining Co. (Pierce), Sand Springs	8,000	5,000	5,000
Sun Oil Co., Yale	5,000	2,650	3,800
Sunray Oil Co., Allen	7,000	3,700	4,000
The Texas Company, West Tulsa	15,000	14,000	14,000
Texas Pacific Coal & Oil Co., Wynnewood	3,000	1,500	1,500
Tidal Refining Co., Drumright	15,000	12,000	10,000
Western Oil Corp., Beckett	2,000	1,200	1,200
Wewoka Refining Co., Wewoka	2,000	(*)	(*)
White Oak Corp., Allen	5,000	2,500	2,000
Wilcox Oil & Gas Co., Bristow	5,000	(*)	2,500
Wirt Franklin Petroleum Corp., Ardmore	4,000	2,550	3,150
Yale Oil Corp., Yale	2,000	500	1,000
York Refining Co., Oklahoma City	3,000	(*)	(*)
Total	335,300	193,945	191,500

*Shut down.



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* * * * * * * *

On stream continuously for 1,582½ hours is the record of a Dubbs cracking unit at the Emlenton, Pa., plant of the Emlenton Refining Co. and is believed to be the record for all Dubbs units. This run was started May 15 at 6 p.m. and the unit was brought down on July 20 at 4:30 p.m. During the run an average daily charge of 750 barrels was cracked yielding from 65 to 72 per cent gasoline daily having an octane number of 70 to 74. All of the gasoline was finished as it left the unit, having been treated in the vapor phase as part of the operation.

The fact this unit gave such results when operating on Pennsylvania oil as a charging stock promises to effect a material improvement in the antiknock value of the gasoline made from any crude.

The unit operates on the so-called flashing system and consists primarily of a furnace, reaction chamber, flash chamber, heat exchanger and fractionating tower, with their accessories. A National Transit pump handles the transfer of the hot oil. The accompanying flow chart shows the course of the oil through the unit.

The plant is running on Pennsylvania gas oil averaging 39° A.P.I. gravity, with an initial boiling point of 324° F. and an endpoint of 702° F.

The gasoline produced tests as follows:

Gravity, °A.P.I.	61.4
100 cc. A.S.T.M.	°F.
I.B.P.	93
10 per cent	149
20 per cent	192
50 per cent	277
90 per cent	356
Endpoint	404
Gum mg. per 100 cc. copper dish	2
Color	30+
Octane number	74

The tests of the fuel oil residue from the operation follow:

Gravity, °A.P.I.	8.9
Flash, °F.	225
Fire, °F.	295
Base sediment and water	0.1
Pour test, °F.	—5
Viscosity, Saybolt Furol @ 122° F.	36 sec.

Pressures and temperatures employed are moderate, and fixed gas production is relatively low.

* * * *

This is one of three Dubbs units recently completed to operate on Pennsylvania charging stocks. The other two are the Pennzoil refinery at Oil City and the Ohio Valley Refining Co. at St. Marys, W. Va., respectively.

While the units embrace all the Dubbs principles, they also have many improvements worked out by technologists of the Universal Products Co.

The Ohio Valley plant is similar to the Emlenton unit and operates substantially in the same manner and under the same conditions except that it is running at a higher rate of throughput—about 1,000 bbls. a day. It is yielding 66 to 70 per cent of gasoline, with an endpoint of 375°-425° F.

The octane number of the gasoline produced so far has ranged from 68 to 72. In this plant, too, gasoline is treated in the vapor phase and taken off as a finished product without re-running. The charging stock of this unit is also gas oil, averaging 39.8° F. A.P.I. gravity with an initial boiling point of 297° F. and an endpoint of 748° F.

General view of Dubbs unit at Ohio Valley Refining Co. Left to right: Furnace, reaction chamber, flash chamber, heat exchanger, fractionating tower, vapor phase treating towers (in foreground), part of receiving house at extreme right.

* * * * * * * *

The tests of gasoline produced average as follows:

Gravity—° A.P.I.	61.6
100 cc. A.S.T.M.	° F.
I.B.P.	94
10 per cent	153
20 per cent	191
50 per cent	289
90 per cent	384
Endpoint	403
Gum mg. per 100 cc.—copper dish	1
Color	30+
Octane number	68–72

The fuel oil averaged as follows:

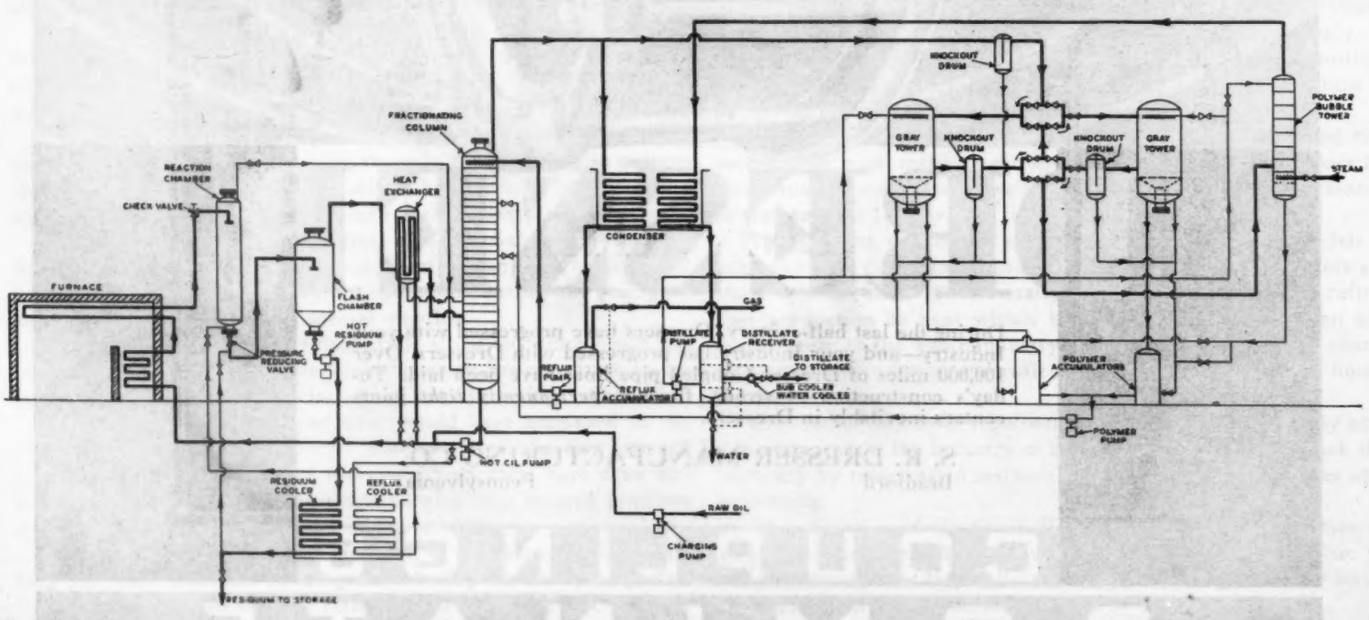
Gravity—° A.P.I.	10.7
Flash—° F.	220
Fire—° F.	290
B.s. and W.—per cent	.2
Pour test—° F.	0
Viscosity—Saybolt Furol at 122° F.	20 sec.

The new cracker at the Pennzoil refinery is that company's third Dubbs unit. The first two, which have a total charging capacity of 1,500 bbls. each, were fired up in November, 1927, and have been running to capacity ever since. The new unit has a capacity of 2,500 bbls.

In its initial runs this new Pennzoil unit has produced as high as 2,000 bbls. of gasoline a day from 2,500 bbls. of charging stock.

For the past three years western Pennsylvania refiners have given increasing attention to the adoption of cracking as a solution of their problem of making high antiknock gasoline from Pennsylvania grade crudes. Outside competition prompted this investigation and the results shown following the trial run on the Emlenton Refining Co.'s plant indicate that more than average progress has been made.

With the addition of this unit the total Dubbs cracking capacity among the western Pennsylvania refiners is increased to 7,250 bbls. daily.



Flow chart showing the operation of the new Dubbs cracking unit at the Emlenton, Pa., plant of the Emlenton Refining Co. Finished gasoline is recovered as a result of treating in the vapor phase.

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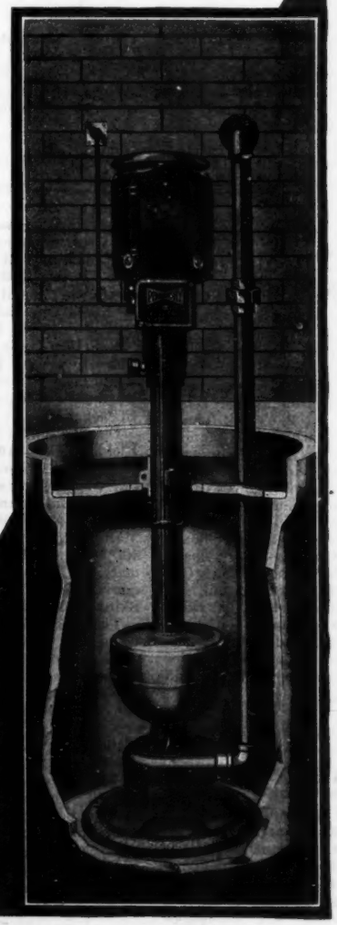

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Water Influences Final Oil Recovery

Rate and Amount of Production From All Pools Determined by Control of Gas and Water Energy in Natural Reservoir

By L. G. E. Bignell
Petroleum Engineering Editor

Following the discovery of every pool of major size there have been wells drilled that have only found water and this has given rise to the general idea that the field would quickly be destroyed by water flooding. Predictions have followed that the life of the pool would be seriously affected and the amount of oil recovered limited. This has almost always been the trend of opinion but experience has proven that it is only natural to find water at the edge of an oil pool or to drill into it when thickness of producing formations were unknown. Production men and engineers recognize this as bound to happen and instead of it proving a detriment it is now looked upon as furnishing essential and necessary data regarding the extent of the producing reservoir.

When East Texas was discovered the first well drilled by Joiner and others was located at the extreme eastern edge of the area as later developed. One well-known geologist stated that what was really needed in that pool at that time was several water wells to determine the extent of the area and the position of the water with relation to the oil. A number of these wells have since been drilled and as shown in the article by J. S. Hudnall on Page 61 of The Oil and Gas Journal of September 3 they are along the west edge and mark the boundaries of the producing horizon in that direction.

Greater Oil Recovery

From the data secured by drilling these water wells it has been possible to make a water datum line and determine quite accurately the depth to which the wells can be drilled safely without endangering oil production. This water line has been set at about —3,320 feet below sea level datum and the wells are drilled so that they are bottomed at some distance above that point. If good practice is followed the sand is cored carefully and the hole then finished to a depth of about 10 feet into the producing formation.

Where such methods have been used and the wells later produced under back pressure and restricted gas-oil ratio it is believed by many that the water movement will be so regulated that practically all the oil can be recovered and the sands washed quite clean for it has been reported that the temperature of the water found in Magnolia Petroleum Co.'s No. 1 Florey was between 155° and 162° F. at the bottom of the hole. With hot water following the oil through the sands it only seems reasonable to assume that a nearly complete recovery of all oil will be effected.

Seminole Area Typical

To illustrate the popular opinion of water movements in major pools and follow with some facts actually developed by producing the wells the Seminole area may be taken as a typical example. Early in the development stage water was drilled into and the rumor promptly spread that the life of the field would be short and it would be only a matter of a little time before Seminole would fade out of the picture.

The facts are now well known for while water was encountered early in the drilling period this knowledge aided the geologists in making correlations of structures and gave much other valuable information for the production man. By controlling its movement it has been made to aid in driving the oil to the wells and even now, though some of these pools show as high as 90 per cent of all wells making water, oil is still being produced in a fair amount.

Water reports on the field have not been made since early spring of 1931 and at that time it was found that out of a total of 1,820 wells in the entire district 916 or 50 per cent were making water.

The water movement has been steady as shown by the detailed study of the Seminole City Pool where it was found that 57½ per cent of the wells made water in April, 1931, while 76 per cent were making water in August. In Bowlegs Pool 60 per cent of the wells were making water in April while 90 per cent were reported in August.

This water has moved forward steadily following the withdrawal of oil and the release of the gas and when properly controlled it is the determining factor in the rate at which the oil can be extracted from the wells.

Hobbs Pool, New Mexico, is another example of water movement that is controlled. This pool was developed in an orderly manner and after one or two wells on the extreme southern end of the pool showed water care was taken in completing other holes in the field with the result that no wells were reported as drilled into water, or at least having any serious water troubles when first opened.

Because of proration being in effect this pool with an estimated potential daily capacity of upward of 1,000,000 bbls. when first completed has been produced at a rate of from 37,500 to 42,000 bbls. daily. All wells have been tubed and back pressure held upon them and as a result the movement of water up the structure has been under control at all times.

However, in spite of every precaution being taken water has at last put in its appearance and is now showing in six wells on the west side of the field. This water movement has been at the rate of 70 feet up the structure in the past four months and it still has 70 feet to go to reach the top of the producing horizon in this part of the field.

As a result of this water movement wells located on the top of the structure have shown a higher gas-oil ratio and every effort is now being made to reduce this high rate of gas movement and by so doing bring the oil to the well. It is predicted that if the gas-oil ratio cannot be reduced the amount of oil recovered per acre in Hobbs Pool will be less than that recovered from the Hendricks Pool in Winkler County, Texas, where the water drive was only partially restricted.

Water Movement in Other Pools

The other major flush pools of the Mid-Continent area are Van Pool in Van Zandt County, Texas, operated upon a

(Continued on Page 99)

East Texas Interests Plan to Consolidate Into Strong Group

FORT WORTH, Tex., Sept. 8.—Representatives from various associations interested in the oil business in East Texas and other areas of Texas met here today to arrange for a meeting at the Baker Hotel, Dallas, Tex., at 2 o'clock Thursday, September 10, at which it is planned to merge the organizations. The associations represented include East Texas Home and Land Association, Capt. J. Louis Thompson, president; Texas Oil Emergency Committee, W. L. Todd, chairman; East Texas Independent Producers Association, S. A. Guiberson, Jr., chairman, and the North Texas Oil and Gas Association, T. F. Hunter, chairman.

The purpose of the meeting Thursday is to form a permanent organization of independent producers, landowners, royalty owners and other interested parties into one strong, independent organization for Texas.

Late Fields

OKLAHOMA

The Duncan area in Stephens County, Oklahoma, is one of the active stripper areas in the southern part of the State. The prospects for the continued demand for crude oil from the stripper areas is promising as long as the flush fields are shut down in Oklahoma.

Murray Oil Co. and others' No. 1 Wilkerson, SE cor. NE SE Section 8-1s-5w, Stephens County, is a new wildcat location 14 miles east of Duncan. It is near the Santa Fe Pool shallow area.

G. Pace's No. 10 McMaster, NE cor. NW NE Section 13-2s-8w, Stephens County, in the field northwest of Comanche, was moving in tools. The derrick was completed several months ago. The same operators' No. 1 B. Toney, NW cor. Section 27-2s-7w, a wildcat east of Comanche, found water at a total depth of 1,964 feet, and was shut down.

K. D. Brown Drilling Co. and others' No. 1 Hightower, SW cor. SE NE Section 15-3s-5w, Stephens County, was drilling deeper at 990 feet after failing to find gas production in sand from 935-45 feet.

On the north side of the Comanche Field, J. C. Chambers and others' No. 1 M. Dare, SE cor. NW SE Section 2-2s-8w, was drilling at 850 feet.

A. R. Bailey and others' No. 1 Weaver, NW cor. SW Section 18-19-9, in the Mannford area of Creek County, flowed 400 bbls. of oil in 18 hours and is estimated to be a 500-bbl. well after a 180-quart shot. The oil was found in the Skinner sand at 2,210-49 feet.

The total daily production from the Oklahoma City Field for the three days ending September 8 were as follows: September 6, a total of 4,366 bbls. from nine wells; September 7, a total of 10,212 bbls. from 10 wells; September 8, a total of 3,551 bbls. from 10 wells.

Phillips Petroleum Co.'s No. 2 Mosey, C SW NE NW Section 3-11-3w, flowed 8,710 bbls. of oil in four hours and was shut in. The oil was found in the Wilcox sand at 6,317-6,482 feet.

Drilling activity is expected to increase in the Oklahoma City Field in a few

(Continued on Page 104)

MAGNETIC STORM

Tucson, Ariz., observatory of the U. S. Coast and Geodetic Survey report a moderate magnetic storm started at 7 p. m. (C. S. T.) on September 4 and ended at 8 a. m. (C. S. T.) on the 8th. The telegrams follow:

"Storm began fourth. One. Moderate."
"Storm ended eighth. Fourteen."

High Spots in Field News

NORTH LOUISIANA, ARKANSAS AND MISSISSIPPI

Zwolle Field still leading in activity, with Monroe-Richland and Jackson Field in Mississippi also busy.

KANSAS

Ritz-Canton price order rescinded. Buyers not forced to pay a dollar a barrel due to limited gathering facilities.

ROCKY MOUNTAIN AREA

Western Hobbs, New Mexico, wells tested for water. Three wells drilling and seven starting in northeastern Colorado.

WEST AND NORTH TEXAS

Ward County continues busy. Pecos Valley Pool is also getting more development. Wheat Pool has 50 producing wells.

CALIFORNIA

California outlook is more favorable. Gas conservation program being pushed. May vote on Sharkey bill at special election.

GULF COAST

Gulf Coast operators watching Manvel salt dome. Another geophysical prospect proved in Vermillion Parish, Louisiana.

SOUTHWEST TEXAS

Recent discoveries in Southwest Texas stimulate drilling. Darst Creek well gauges 6,072 bbls. New sand found in Saxet Field.

OKLAHOMA

Possibilities in Payne, Logan and Garfield Counties and the area between Greater Seminole Pool and Oklahoma City Pool studied.

EAST TEXAS

Production for first day after reopening under new order estimated at 415,875 bbls. Ninety locations staked and 60 completions recorded during week.

Ninety Locations in East Texas Area

Sixty Completions Reported During Week. From 1,500 to 2,000 Wells May Be Drilled Before the First of the Year

By L. E. Brodberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 7.—Ninety locations were staked in East Texas district for week ending September 3, and 60 wells were completed. There were 507 wells drilling during this period, 141 in the Joiner area, 229 in the Longview and Gladewater areas and 137 in the Kilgore area. Under the present plan of limiting the wells to 225 bbls. per day companies with plenty of financial backing and large leases are expected to continue the rapid rate of drilling, especially on inside locations, in order to raise their daily total. This is one reason for many holding the opinion that the well limit plan will fail, and that if continued, from 1,500 to 2,000 more wells will be drilled in the district before the first of the year.

The Gulf Production Co., Tidal Refining Co. and Sinclair Oil & Gas Co. met the Magnolia Petroleum Co.'s 68-cent posted price, during the week. Magnolia posted this price on August 22 and was followed at that time by only the Sun Oil Co. The Texas Company has no posted price for the district but effective at 7 a. m., September 7 and until further notice, it announced that it would pay the prevailing price on the date oil is run by the company. This is something new in the way of announcing prices or postings, the Humble Oil & Refining Co. having no posting in the district, but paying the top price. The company has heretofore been paying the weighted average for crude from the district, which ran around 14 to 15 cents before martial law was ordered, and all wells shut down. The weighted average was figured at the end of each month, and after the oil was run.

Speculation on Price

Many are of the opinion that the price will soon fall in the district, but with approximately 1,000,000 bbls. of outlet by trunk lines, tank car loading racks and local refineries and with a daily allotment of 400,000 bbls. set for the district, and the purchasing companies having many crude oil buyers in the fields soliciting connections, it looks as if competition would be sufficient enough to maintain the 68 cents being paid at the present time, and might even force the price up to around $1. Many companies have enlarged their crude buying forces in the district, and some of the companies which have not been soliciting connections heretofore, have men in the field soliciting connections as rapidly as possible. There are six companies in the race for connections at the present time, other purchasers probably joining the list during the week.

The Humble Oil & Refining Co. is transporting 20,000 bbls. per day for the Stanolind Oil & Gas Co. to Mexia where the Stanolind takes it over for running north through its main trunk line to Oklahoma.

Purchasing companies have been advancing fuel oil and giving assistance to independent operators drilling wells during the shut down in order to fortify themselves with new connections when the district was again opened to production, and instead of the independent operators seeking connections as they have had to do in other districts of the State during the past two years, they will have plenty of chances to sell their oil and obtain connections, at least for the next few months.

While the district has been standing shut down so far as production is concerned, drilling has continued, although slightly lessened due to lack of fuel in some instances. Two wells on the western side of the district, one in the Gladewater area, and one in the Overton area, have helped to definitely preclude production from advancing farther west in those two localities. The Houston Oil Co. and Heep's No. 1 Cole in the Duncan Survey, on the extreme western side of Gregg County, and approximately one-quarter mile south of the Sinclair Oil & Gas Co.'s No. 1 Cole which was one of the most disastrous fires of the district, has been abandoned at a total depth of 3,595 feet limiting production in that area and helping to define the western limits of the Gladewater producing area.

Imperator Oil Co.'s No. 1 John Johnson in the northwest corner of the Hy. B. Dance Survey, due south of Overton on the western edge of Rusk County, is also another west edge marker to the producing area. It is 3,800 feet northwest of the nearest producer. It encountered a hard dry sand at 3,846-54 feet, soft dry sand from 3,854-62 feet and salt water sand from 3,862-65 feet and is now standing shut down at the latter depth waiting on plugging orders.

Joiner Pool

The Sinclair Oil & Gas Co. will plug its No. 1-A Jarvis which is located in the Juan Vargas Survey in the extreme southwestern corner of the Joiner Pool, across the line in Smith County. This well has been making considerable water, and as the company has several offset wells plugging was considered best for the leases and other wells. Bottom hole datum is 3,315 feet and datum on top of sand is 3,305 feet. The well has been flowing pinched to around 150 bbls. per day. This was one of the many wells in the area which would not have made its 225-bbl. limit under the new curtailment order. Many wells on the eastern side of the Joiner Pool were dead before the district was shut in, and many of these wells are considered as not capable of producing 225 bbls. per day, but during the shut down pressures in the field have increased and some of these wells will undoubtedly flow as has already been proven in four cases in this area, consequently they will come back better on production, at least for a short period. Pinching them in and holding back production in the entire district should maintain pressure, and prolong the flowing period of the flush producers, one of the main arguments for curtailing production in the fields.

O. H. Burkett is chief deputy supervisor in the East Texas district, with A. B. Capers in charge of proration work. Assistant supervisors are listed as follows: V. E. Cottingham, San Angelo; W. P. Laughter, Matagorda; Luther Swift, Nacogdoches; and E. W. Barr of Electra. Chief gaugers of the district are: K. B. Knoz in the Lathrop and Gladewater areas, Gregg County; George Phillips, Kilgore area; J. B. Barineau, Joiner area; and B. B. Bickerstaff in the London area, Rusk County. These gaugers in the Kilgore and Lathrop areas are to have six assistants each and those in the London and Joiner areas will have five each. General Wolters, in charge of the troops in the field, will also supervise the gaugers while the district is maintained under martial law. The well gaugers are: George Phillips and Howard M. Van Zandt, Fort Worth; W. R. Tandy, Abilene; Paxton Gray and Horace Camp, Austin; J. N. Parinear, Houston; Grady Russell, Stephenville; Clinton Kendall, San Antonio; B. D. Byrne, Austin; Luther Bellew, Decatur; B. B. Bickerstaff, Dallas; A. D. Brinkerhof, Waco; H. W. McCurley, Beaumont; M. N. Shelton, Walnut Springs; and Paul Phillips, Dalhart. R. C. Bowles, San Antonio, is office engineer, L. A. Millhallon, Midland, chief clerk, R. E. King, Tyler, clerk, and A. E. Amos, Fort Worth, checker.

Gregg County

J. G. Beard's No. 1 Muckelroy, top pay 3,618 feet, total depth 3,627 feet, initial production 152 bbls. per hour through open tubing. Clark and Kinnebrew's No. 1 Register, top pay 3,682 feet, total depth 3,700 feet, initial production 120 bbls. per hour through three-quarters-inch tubing choke. Cranfill & Reynolds' No. 1 Davis, top pay 3,554 feet, total depth 3,571 feet, initial production estimated 200 bbls. per hour through open tubing. Delaney & Stoddard's No. 1 Smith, top pay 3,616 feet, total depth 3,636 feet, initial production 125 bbls. per hour through three-quarters-inch tubing choke. Golding & Cochran's No. 1 S. Smith, top pay 3,665 feet, total depth 3,676 feet, initial production 200 bbls. per hour through open tubing. Houston Oil Co. and Heep's No. 1 Cole, dry and abandoned 3,595 feet.

Lambert and Hines' No. 1 Hilburn, top pay 3,680 feet, total depth 3,694 feet, initial production 110 bbls. per hour through three-quarters-inch tubing choke. Magnolia Petroleum Co.'s No. 4 King, top pay 3,697 feet, total depth 3,699 feet, initial production 80 bbls. per hour through three-quarters-inch tubing choke. Shell Petroleum Corp.'s No. 3-A Douglass, top pay 3,605 feet, total depth 3,609 feet, initial production 110 bbls. through three-quarters-inch choke. Tidal Oil Co.'s No. 6 Blackman, top pay 3,640 feet, total depth 3,650 feet, initial production 105 bbls. per hour through three-quarters-inch choke. Tidal Oil Co.'s No. 1 Strong, top pay 3,668 feet, total depth 3,681 feet, initial production 200 bbls. per hour through open tubing.

Atlantic Oil Producing Co. and Byrd and Frost's No. 1 Hughey, top pay 3,567 feet, total depth 3,602 feet, initial production 210 bbls. per hour through 2½-inch tubing. Humble Oil & Refining Co.'s No. 1 Knowles, top pay 3,532 feet, total depth 3,591 feet, initial production 108 bbls. per hour through three-quarters-inch choke. Shell Petroleum Corp.'s No. 1-B Douglass, top pay 3,676 feet, total depth 3,708 feet, initial production 125 bbls. per hour through 2½-inch tubing. Shell Petroleum Corp.'s No. 1-B Elder, total depth 3,547 feet, total depth 3,590 feet, initial production 175 bbls. per hour through 2½-inch tubing.

C. S. Thomas and others' No. 1 Davis, top pay 3,637 feet, total depth 3,648 feet, initial production 170 bbls. per hour through 2½-inch tubing. Valentine Oil Co.'s No. 1 Hilburn, top pay 3,627 feet, total depth 3,647 feet, initial production 185 bbls. per hour through 2½-inch tubing. Gulf Production Co.'s No. 1 Neeley and others, top pay 3,493 feet, total depth 3,515 feet, initial production 138 bbls. first hour through three-quarters-inch choke.

Angelina County

Pollock Oil Co.'s No. 1 Sessions, dry and abandoned 4,000 feet.

Henderson County

Westside Investment Co.'s No. 1 Thornhill, dry and abandoned 4,850 feet.

Upshur County

Margay Oil Co.'s No. 1 Victory, top pay 3,603 feet, total depth 3,621 feet, initial production 90 bbls. per hour three-quarters-inch choke. Humble Oil & Refining Co.'s No. 1 Watkins, top pay 3,674 feet, total depth 3,690 feet, initial production 169 bbls. in 3 hours through three-quarters-inch choke. Same company's No. 1 Smith, top pay 3,630 feet, total depth 3,645 feet, initial production 67 bbl. on 2-hour gauge through three-quarters-inch choke. Same company's No. 1 Edwards, top pay 3,604 feet, total depth 3,631 feet, initial production estimated at

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EAST CENTRAL TEXAS WILDCATS

Week Ending September 4

ANDERSON COUNTY

Company, well, farm name, section and block—	Remarks:
Riango Oil Co.'s No. 1 J. Lynn, 1,400 ft. from NE line and 7,425 ft. from E line of survey, R. Brown Sur.	Fishing 2,755 ft.
H. B. McConnell et al's No. 1 N. B. Watson, 500 ft. from W line and 4,850 ft. from N of S line of survey in S half of 129-ac. tract, M. Main Sur.	Derrick.

ANGELINA COUNTY

R. O. Moore's No. 1 Abney Estate, 50 ft. N of Blk. No. 6, immediately out of city limits of Lufkin	T. D. 1,350 ft.; to recement csg.

BOWIE COUNTY

Tom Bell's No. 1 Merritt, 1,225 ft. from N and 875 ft. from E line of survey, T. S. McKinney Sur.	Shut down 2,650 ft.
Logan and Elliott's No. 1 J. W. Smith, 9,600 ft. S and 2,500 ft. W of NE cor. of survey, Charles Lewis Sur.	Drlg. 3,150 ft.
Parkering-Jones et al's No. 1 W. W. Whybark, 200 ft. from S and W of SW cor. of J. A. Dyer Sur.	Shut down 20 ft.
Lee Timberlake et al's No. 2 Julius N. Tidwell, 655 ft. from E and 2,510 ft. from S of survey in L. M. Rice Sur.	Salt water on drill stem test; shut down 3,012 ft.

CHEROKEE COUNTY

Bridges and Candler's No. 1 Berryman, center of Berryman tract, James Dill Sur.	Rigging up.
Denman et al's No. 1 Mrs. Renfroe, 330 ft. N of S line and 330 ft. E of W line of farm, Uriah Moore Sur.	Derrick.
Helen-Clare Oil Co.'s No. 1 Mrs. M. P. Perkins, 1,800 ft. from N and 450 ft. from W of survey, Thomas Stafford Sur.	Rig up.
William A. Stone's No. 1 Blount Decker, 900 ft. E of E line of S. Selman Sur. and 1,200 ft. S of N line of E. M. Decker 406-ac. tract in George Ruddle Sur.	T. D. 5,474 ft.
Walton Oil Co.'s No. 1 E. Singletary, 250 ft. W and 150 ft. N of NE cor. of M. Lacey Sur. and in Walters Sur. on Singletary 84-ac. tract	T. D. 2,960 ft.; shut down.

DALLAS COUNTY

Paris' No. 1 Wilkinson, 2,787 ft. from NW and 3,241 ft. from SW of John P. Anderson Sur.	T. D. 870 ft.; shut down

DELTA COUNTY

Doyle & Jondeau's No. 1 C. S. Legatt	Rig up.
D. S. Hood's No. 1 J. J. Balser, 185 ft. from S and 580 ft. W of Balser 40-ac. tract in SE cor. T. B. Laddin Sur.	Shut down 1,559 ft.

(Continued on Page 85)

Ward County Most Active in Permian

Pecos Valley Pool Also Gaining in Activity. Lone Star May Buy Texas Pacific Gas Rights in Ranger Area

By L. E. Bredberg
Fort Worth Bureau, The Oil and Gas Journal

FORT WORTH, Tex., Sept. 7.—Ward County continues as the most active area in the Permian Basin. The Pecos Valley Pool, 20 miles north of Fort Stockton in Pecos County, is gaining in activity; a small refinery now is in process of construction in the pool to refine part of the production which is coming from the many shallow wells there. One small pipe line, owned by Charles Messenger and associates, is alone to serve the pool at the present time. It transports crude to southern Ward County where the Wickett Pipe Line Co. connects with a line running to the company's refinery at Wickett.

Charles Messenger and associates are now building a 250-bbl. plant in Section 54, Block 10, in the pool to process crude from his and offset wells, the gasoline to be trucked to local distributing stations as there is no railroad near the pool.

The Rio Grande Oil Co.'s refinery at El Paso, which has been shut down for several weeks, thereby cutting off a market for many wells in the Wheat Pool, Loving County, is again in operation, and 12 wells belonging to Lockhart & Co. were placed back on production in the field. The Pasotex Refining Co. transports the oil from the wells to this refinery through its 8-inch, also carrying about 3,000 bbls. daily to the Pasotex Refining Co.'s plant at El Paso.

Ward County

Sturm and Simms Oil Co.'s No. 1 Jones in the Texas Pacific extension area, between the Shipley and Bennett Pools, Ward County, continues to make 120 bbls. per day heads of 30.5 gravity oil with the same amount of gas reported last week, around 1,500,000 feet per day. The pay was logged at 2,475 feet and it was drilled to 2,485 feet before shutting down to erect storage.

Bradford's No. 1 York, in the same area, is also shut down at 2,503 feet making one head of oil during the week after being shut in for 12 days during which time it built up pressure. It is shut down at 2,503 feet. Gas was struck at 2,285 feet, with an increase in oil and gas at 2,300 feet. The well is in Section 10, Block 34, H.&T.C. Survey, whereas the Jones well is in Section 25, Block B-29.

Wesner's No. 1 Nicks in Section 77, Block LL, T.C. Railway Survey, 2 miles northeast of Eldorado in Schleicher County, is standing shut down after 23 sacks of cement were used to cement a cave. The hole is now dry, and as soon as cement sets the test will be deepened. This test has created considerable excitement for Schleicher County during the past three months due to its having encountered a good oil showing and having seen some oil before casing was set to shut off water coming from above bottom of hole. Present total depth of the test is 4,080 feet.

The Eastland Oil Co. is also drilling a deep test in the county, on the Tisdale ranch, in Section 29, Block M. G.H.& S.A. Survey. It is down 4,085 feet and is to be drilled to 4,500 feet unless oil in commercial quantities is found above this depth. It is approximately 8 miles northwest of the Nicks test.

Big Lake Pool

Group No. 1 Oil Corp. and Continental Oil Co. are making preparations to kill the first deep well drilled in in the Big Lake Pool, Pecos County, No. 1-B University. This is being done in an effort to find out whether the well can be reconditioned so as to conserve gas in accordance with the Railroad Commission's desires. The companies have already shut in Nos. 2-B and 3-B several months ago, and the Big Lake Oil Co. has its Nos. 2-C and 3-C shut in. Nos. 3-B and 4-B University of the former companies will also be deepened to lower their gas-oil ratios in a conservation effort. Total depth of No. 1-B University is 8,525 feet, from which it has been producing since completed in December, 1928. It has been producing around 2,200 bbls. per day with an approximate 16,000,000 feet of gas.

Wheat Pool

There are now 51 producing wells in the Wheat Pool, Loving County, Martin's No. 2 Wheat and Ramsey marking the last producer to be completed in the field, flowing sweet high gravity from the first sweet oil producing pool discovered in the Permian Basin, and producing from the Delaware sand. It flowed 242 bbls. the first 13 hours after being shot with 190 quarts from 4,175 to 4,215 feet. It is in Section 83, Block 1, W.&N.W. Railway Survey. Top of the sand was logged at 4,182 feet and total depth was 4,217 feet before being plugged back to 4,215 feet to shoot. It is estimated good for around 200 bbls. per day, flowing.

While the East Texas district has been shut down, drafts on West Texas storage have been considerably higher than heretofore. During the week oil was withdrawn from storage in the district at the rate of 42,000 bbls. per day, or more than 9,000 bbls. per day over the preceding week's rate. This increase was registered in trunk line shipments and tank car shipments from the district, 1,380 bbls. per day being moved by tank cars from McCamey, whereas the previous week showed no movements from the district by tank cars. Withdrawals during the present week will probably slump off due to East Texas reopening, and purchasing companies operating in both districts taking more from the eastern pool than from the Permian Basin. The Shell Pipe Line Co. was responsible for the majority of the gain of trunk line movements from the West Texas pools during the week, while the Magnolia Pipe Line Co. increased its runs, and the Pasotex also raised its daily amounts, partly due to the Rio Grande Oil Co.'s refinery starting up and taking oil from the Pasotex line.

Ranger District

The Lone Star Gas Corp. of Dallas, Tex., large producer, purchaser and distributor of gas in Texas and Oklahoma is negotiating with the Texas Pacific Coal & Oil Co. of Fort Worth for the purchase of 72,000 acres of gas producing lands in the Ranger district, lying mostly in Eastland, Stephens and Palo Pinto Counties, most of the properties being located around Strawn in the latter county. The sale is to involve only the gas rights to the properties which now have a potential of 50,000,000 feet per day, but which have been shut in for lack of market.

The Lone Star Gas Corp. has producing properties in this area, and is the main purchaser of gas in the district, supplying towns throughout the district, and piping considerable of it to Fort Worth and Dallas. The purchase, if consummated, will give the Lone Star Gas Corp. another large potential supply of gas.

Wichita Falls

This district continues to show a gain in activities, and a betterment of its past situation, due mainly to the East Texas district having been shut in, and with no oil coming from that district to compete with oil from the local fields at the refineries in the district. Better prices have brought about new activities, including the cleaning out and working over of old wells which have been off of production for many months, present prices paying for this work, and paying the operators for the production of the oil, whereas heretofore prices were insufficient to merit the raising of the oil, especially from the pumpers, the district having thousands of them. With the East Texas district curtailed, and pipe line companies and local refineries in that district demanding the entire production, it appears that the Wichita Falls district would be permanently helped, and the situation would continue to become better.

WEST TEXAS PRODUCTION

Week Ending September 7

County—	No. wells	Prod.
Andrews	4	....
Crane	377	15,334
Crockett	51	1,257
Ector	78	7,550
Fisher	11	479
Garza	2	....
Howard-Glasscock	543	28,572
Irion	9	86
Jones	36	1,334
Loving	44	3,145
Mitchell	111	1,820
Pecos	549	73,446
Reagan	355	25,260
Runnels	5	73
Scurry	5	....
Upton	262	4,615
Taylor	3	61
Ward	67	3,086
Winkler	595	39,455
Total production this week		205,553
Total production last week		206,762
Decrease		1,209

NORTH TEXAS PRODUCTION

Week Ending September 7

Panhandle district—	(Bbls.)
Carson County	5,225
Gray County	42,456
Hutchinson County	12,020
Moore County	959
Potter County	....
Wheeler County	611
Total production this week	61,271
Total production last week	59,068
Increase	2,203

Wichita Falls district—	(Bbls.)
Archer County	11,357
Baylor County	502
Clay County	532
Cooke County	1,376
Foard County	70
Haskell County	36
Jack County	2,127
Montague County	2,909
Throckmorton County	408
Wichita County	17,024
Wilbarger County	12,603
Young County	9,942
Total production this week	58,876
Total production last week	58,204
Increase	672

Ranger district—	(Bbls.)
Brown County	3,260
Callahan County	1,213
Coleman County	3,100
Comanche County	749
Palo Pinto County	376
Eastland County	2,774
Shackelford County	2,139
Stephens County	4,150
Total production this week	16,781
Total production last week	16,626
Increase	155

WILDCAT OPERATIONS IN WEST TEXAS

Week Ended September 7

Company, well, farm name, section and block—	Remarks—
BREWSTER COUNTY	
Brewster Oil Co.'s No. 1 fee, 2,640 ft. S and 2,598 ft. E of NW cor. Sec. 45, Blk. G-15, G.C.&S.F. Sur.	Shut down 1,935 ft.
E. L. Chapman's No. 1 Skinner, C SW SE Sec. 100, Blk. 2, G.C.&S.F. Sur.	Shut down 1,302 ft.
Trans-Pecos Oil & Gas Co.'s No. 1 Jones, 930 ft. from N and 2,500 ft. from E of Sec. 18, Blk. G-15, G.C.& S.F. Sur.	Shut down 2,900 ft.
Van McPhail's No. 1 McIntyre, SE cor. Sec. 59, Blk. 352, 7 miles south Alpine	Shut down 1,750 ft.
COCHRAN COUNTY	
Penn Oil Co.'s No. 1 Myrick, C Labour No. 80 of League 129, Carson County School Lands	Rigging up (standard).
CONCHO COUNTY	
Beesley et al's No. 1 Waring Estate, 400 ft. from N and E Sec. 163, T.&N.O. Sur.	Shut down 267 ft.
Betts & Dennis' No. 1 H. E. Woods, 710 ft. from E and 150 ft. from S Sec. 3, H.E.&W.T. Sur.	Shut down 80 ft.
Turner et al's No. 1 Borsig, 150 ft. from S of NE cor. G. Emmig Sur. 130, 6 miles W of Paint Rock	Shut down 1,850 ft.
CRANE COUNTY	
Penn Oil Co. et al's No. 1 J. B. Tubb, 330 ft. from N and E of SW cor. of S 80 acres of NW cor. Sec. 3, Blk. B-27, P.S.L. Sur.	Rig up.
CROCKETT COUNTY	
Doleman & Moore's No. 1 Ferner, 3,135 ft. from N and 1,485 ft. from E of Sec. 36, Blk. 2, I.&G.N. Sur.	Spudded and shut down.
CULBERSON COUNTY	
Kornrumpf et al's No. 1 Garren, 330 ft. S and W Sec. 15, Blk. 79, Public School Land	Shut down 1,280 ft.
ECTOR COUNTY	
Weekly Oil Corp. et al's No. 1 Cowden, 1,980 ft. from N and W Sec. 23, Blk. 43, Twp. 2s, T.&P. Sur.	Location.
H. F. Wurts' No. 1 E. A. Ibbetson et al, 330 ft. from N and E lines of NW Sec. 16, Blk. 46, Twp. 3s, G.M. M.Br.&A. Sur.	Shut down 3,280 ft.
EL PASO COUNTY	
Tri-State Oil Co.'s No. 1 Bobadella, 1,325 ft. from S and E lines Sur. 254, S.F. No. 7,247	Shut down 1,693 ft.
FISHER COUNTY	
Cranfill & Reynolds' No. 1 George, 400 ft. from N and 330 ft. from E, Sec. 300, Blk. 1, B.B.&C. Sur.	Bldg. rig.
The Texas Company's No. 1 B. H. Barnham, 357 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur.	Location.
GAINES COUNTY	
Texas Consolidated Oil Co. et al's No. 1 Jones, 2,310 ft. from NE Sec. 4, Blk. A-3, P.S.L. Sur.	Total depth 4,680 ft.
GARZA COUNTY	
Pandem Oil Corp.'s No. 1 Justice, 330 ft. from S and W of Sec. 12, Blk. 4, H.&G.N. Sur.	Spudded and shut down.

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COMPLETIONS IN WEST TEXAS

Irion County

Straughan and Texannati's No. 1 F. Tankersley, show of oil 1,220-25 feet, tested 4 bbls. of oil and 35 bbls. of water, dry and abandoned, total depth 1,500 feet.

Pecos County

Messenger and others' No. 1 Butz, top pay 1,290 feet, initial production 65 bbls. per day, total depth 1,331 feet.

Reeves County

Humble Oil & Refining Co.'s No. 1 Balmorhea Livestock, total depth 4,916 feet, top Delaware 4,647 feet, top sand 4,684 feet, salt water 4,804 feet, increase in water 4,822-33 feet, dry and abandoned, total depth 4,916 feet.

Ward County

Beckley and others' No. 1 M. L. Johnson, total depth 2,240 feet, plugged back to 2,235 feet, show gas 2,180 feet, top pay 2,195 feet, shot with 80 quarts at 2,195-2,235 feet, initial production 25

(Continued on Page 82)

To save trouble on BAND-WHEEL POWERS

try this new double cord Goodyear drive belt . . . made endless

GOOD band-wheel power installations should be almost automatic in operation. It doesn't pay to waste labor time on them or to apply equipment which needs constant attention. Above all, the drive belt should be free from trouble.

The Goodyear COMPASS Cord Oil Well Belt in the new DOUBLE construction is an ideal harness for band-wheel powers. You can get it made endless in lengths to 125 feet. So stout is the double layer of cord that there is practically no stretch. Once on the wheel COMPASS DOUBLE turns out a satisfying performance day after day. The strong core of cords carries the load. The tough covering envelope protects from wear against pulleys and idler.

For deep-well drilling and pumping service this new Goodyear belt is unexcelled. *On one of the hardest wells in the Tonkawa Field it outwore five other belts and it's still on the well!*

The G.T.M.'s—Goodyear Technical Man's—assistance saves money for you on belting purchases. He is an expert on oil industry hose. To see him, just write to Goodyear, Akron, Ohio, or Los Angeles, California, and ask the G.T.M. to call.

This is the new COMPASS *Cord Oil Well Belt*—DOUBLE—*developed by Goodyear for extra service in deep-well drilling or pumping and on band-wheel powers — note double-shock-proof drive cords*

THE GREATEST NAME IN RUBBER

GOODYEAR

BELTS • MOLDED GOODS • HOSE • PACKING

Pipe Line Construction News

NEW TEXAS LAW MAKES PIPE LINES UTILITIES

The enactment of the new Texas pipe line law, a measure of extreme importance to all gas and oil interests operating in the State, has resulted in the placing of more than $250,000,000 of pipe lines under the control of a public service commission, according to Ford, Bacon & Davis, Inc. The new law, these engineers point out in a brochure just made public, makes public utilities of the Texas pipe line companies and as such they will be regulated and charged rates set by a state commission in the same manner that electric, gas and water companies are regulated.

The Ford, Bacon & Davis brochure also deals exhaustively with the new Texas conservation act and its provisions. The passing of this act and the pipe line law will make necessary hundreds of appraisals, valuations and depreciation studies in order to properly present rate cases, reports upon oil and gas gathering facilities and other matters that enter into finding a rate base and setting a rate that will allow each company to earn a "fair return" upon its investment.

"With respect to these pending cases and rate hearings," Ford, Bacon & Davis says, "the pipe line companies of Texas are now in much the same position as electric light, gas and other utilities throughout the country. While it is not known what attitude the commission will take, it is probable that they will follow the usual utility commission procedure of placing the 'burden of proof' as to reasonable rates upon the carrier. This will mean that in order to establish a rate that 'will provide a fair return upon the aggregate value of the property' the companies will have to present complete valuations. Rate case proceedings in presenting these valuations will probably closely follow public utility practice and be in a measure subject to precedents that have been established. Valuations on the basis of reproduction cost new, reproduction cost new less depreciation and historical cost will probably be needed in order to establish the 'aggregate value'."

Ford, Bacon & Davis particularly advise pipe line companies to be certain that values presented to the commission are fully comprehensive and represent total aggregate value, the values placed upon reproduction of physical property not alone being a sufficient figure to make up the fair rate base.

NEW GATHERING LINE IN NEW YORK STATE

CORNING, N. Y., Sept. 7.—Another step toward gathering the gas from the natural gas field in central and southern New York State will be taken soon with construction of a gathering line to wells near Wayne, owned or controlled by three drilling concerns.

Announcement of the new line, made by the Belmont-Quadrangle concern, followed closely the signing of a contract for the purchase of Wayne gas of the Eastern States Natural Gas Corp. by Belmont-Quadrangle.

The Eastern States is a Binghamton concern with a well near Wayne producing 4,000,000 feet daily. Gas from this well will go to the Iroquois Gas Corp. of Buffalo for use in that city.

The new gathering line, for which Rich & Co. have the contract, will be a feeder for the new Iroquois line which will run from the Wayne Field to Hammondsport, Bath and up the Coshocton River to Dansville.

Under another arrangement gas from the same line will be bought from the Iroquois firm by the New York Central Electric Co. and distributed in towns along the route.

COLUMBIA EXTENDING LINES NEAR BALTIMORE

NEW YORK, Sept. 7.—Columbia Gas & Electric Co. will shortly begin the distribution of natural gas to a large area surrounding Baltimore and to a large portion of the State of Maryland, following a favorable decision by the Maryland Public Service Commission.

While the present arrangements do not take in Baltimore city, where gas and other utility service is supplied by the Consolidated Gas, Electric Light & Power Co., the commission's decision is expected to lead to an arrangement between Consolidated and Columbia for natural gas for Baltimore city.

Maryland Counties Gas Co., a subsidiary of Columbia, will construct natural gas pipe lines in Howard and Baltimore Counties. Another subsidiary, Patuxent Gas Co., will build lines in Montgomery County, and a third unit, Chesapeake Gas Co., will distribute the natural product in Cecil and Hartford Counties.

PARSONS PIPE LINE BRANCH

Construction of a 4-inch gas pipe line from the McCune, Kans., gas field to connect with the Parsons Pipe Line Co. main line is contemplated by the Parsons Pipe Line Corp., which was recently purchased by C. O. Moore and E. M. Moore of Kansas City, Carl V. Rice and M. Moore of Parsons and W. F. O'Brien of St. Paul, Kans. The line will be about 11 miles in length. The firm will be known as the Kansas Communities Co. Development of the gas field around McCune is contemplated.

TWO EAST TEXAS LINES ABOUT HALF COMPLETED

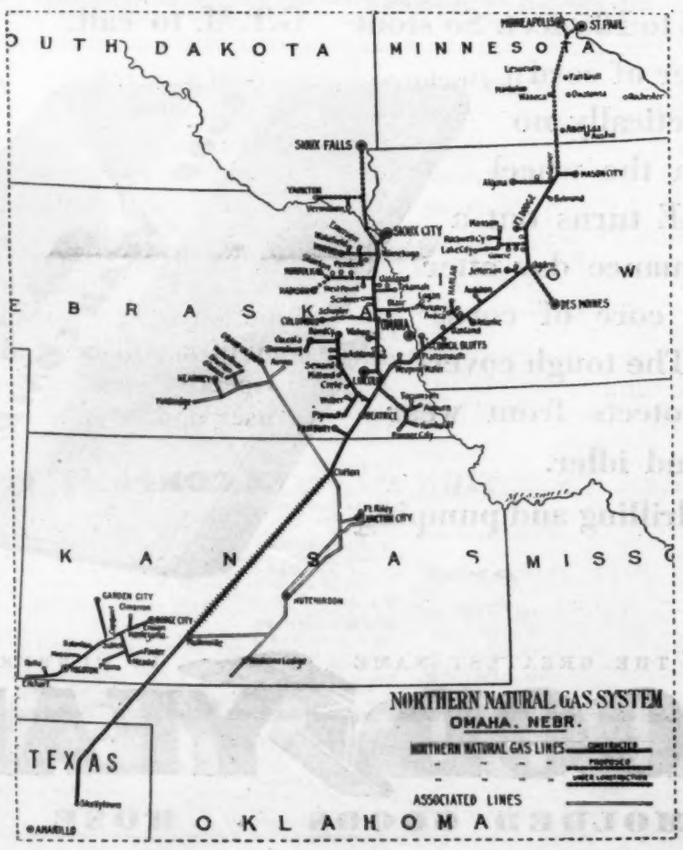
FORT WORTH, Tex., Sept. 7.—The Texas-Empire Pipe Line Co.'s 12-inch line to the Coast is approximately half completed and will soon be vying for connections in the East Texas district, as will the Atlantic Pipe Line Co.'s 10-inch line, which is also about half completed to the Coast and which is being built at the rate of 8 miles a day.

The Magnolia Petroleum Co. has taken over the Gulf Coast Pipe Line Co.'s gathering system and all connections in the Joiner Pool, thereby strengthening its foothold in that field and acquiring another source of supply.

The Sun Oil Co. has taken over H. L. Hunt's lines, gathering system and connections in the Joiner Pool, Rusk County, giving that company a large source, as Hunt was one of the first operators in the district to build gathering system and purchase outside oil. The Sun Pipe Line Co. will also transport oil through its main trunk line to Sun City on the Gulf Coast for the Toronto Pipe Line Co., which is laying a 6-inch lateral line in the Joiner Pool to connect with the Sun Pipe Line Co.-Yount Lee Pipe Line Co. main line. Toronto Pipe Line Co. will load out on tankers from Sun City for the eastern seaboard and Canadian refineries. Heretofore, it has been shipping by tank cars.

The Empire Gas & Fuel Co. is building two 80,000-bbl. tanks at the Texas Pipe Line Co.'s tank farm near Friar Switch in the Joiner Pool, Rusk County, and also one 80,000-bbl. tank on The Texas Company's tank farm near Gladewater.

A RAPIDLY EXPANDING NATURAL GAS SYSTEM



MORE THAN 100 TOWNS WILL GET GAS SERVICE

According to an announcement made by the Northern Natural Gas Co., more than 100 towns will be served by the company by the end of 1931 as a result of the many branch lines now under construction or planned for early construction.

Among the towns to be added during the next two months are the following, Iowa—Belmond, Britt, Carson, Farnhamville, Fort Dodge, Garner, Gowrie, Harcourt, Lake City, Lehigh, Lohrville, Manson, Marne, Oakland, Ogden, Rockwell City, Walnut. Nebraska—Adams, Ashland, Bancroft, Elkhorn, Elmwood, Emerson, Johnson, Louisville, Palmyra, Pender, Valley, Wakefield, Waterloo, Wayne, Weeping Water, West Point. Under negotiations pending many other cities and towns will be served before the end of the year.

Cities and communities served by the company and affiliated concerns are:

Kansas: *Argus Pipe Line Co.—Cimarron, Copeland, Dodge City, Elkhart, Ensign, Fowler, Hugoton, Meade, Montezuma, Moscow, Plains, Rolla, Satanta, Sublette, Cudahy Silica Mine near Meade, and the Soldiers Home at Fort Dodge. *Garden City Gas Co.—Garden City.

Nebraska: *Peoples Natural Gas Co.—Auburn, Humboldt, Pawnee City, Sterling and Tecumseh.

*Fairbury Gas & Electric Co.—Fairbury.

Iowa-Nebraska Light & Power Co.—Lincoln, Beatrice, Plattsmouth, Bee, Clatonia, Cortland, Crete, De Witt, Dorchester, David City, Friend, Hallam, Milford, Osceola, Plymouth, Rising City, Seward, Staplehurst, Stromsburg, Shelby, Ulysses, Wilbur, Arlington, Blair, Craig, Oakland, Tekamah and Wahoo.

The Central States Electric Co.—Lyons, Rosalie, Walthill and Winnebago.

The Elkhorn Valley Power Co.—Hooper and Scribner.

Industries served directly from the main line—Nebraska Cement Co., Superior; Fairchild Clay Products Co., Endicott; Marthis Packing Co., Fairbury, and Kahler Pottery, Louisville.

Iowa: The Council Bluffs Gas Co., Council Bluffs; The Peoples Gas & Electric Co., Mason City; Fort Dodge Gas & Electric Co., Fort Dodge, and Armour and Cudahy Packing Plants, Sioux City.

*Divisions of the Northern Natural Gas System.

TO MODERNIZE LINES OF NATIONAL TRANSIT

OIL CITY, Pa., Sept. 7.—Contracts have been let by the National Transit Co., involving the modernization of its 6-inch Pennsylvania pipe line from the Atlantic seaboard to interior points in western Pennsylvania.

The new work includes the building of several additional stations, equipped with motor driven pumps, permitting more efficient and economical operation. Twelve new horizontal pumps will be used in the project, and these are now being built at the local plant of the National Transit Pump & Machine Co. When completed, about November 1, the capacity of this line will be materially increased.

SKELLY VOSHELL LINE

The Skelly Oil Co. reports it has about completed 12 miles of 6-inch welded pipe line between Voshell and the Ritz-Canton Pools in Kansas to handle its oil. The oil will be pumped with electric motor driven reciprocating pumps, that equipment having been shipped to Kansas from the Seminole properties of the Skelly Oil Co. J. R. McWilliams, engineer, has been in charge of the work and the line has been laid quickly.

Two Buckeyes cut all of the trench for this extensive southwestern gas line. Each averaged 3500 lineal feet daily, 30 inches wide by 4½ feet deep. Their contractor-owner uses Buckeyes exclusively.

Buckeyes Are Master Pipe Liners

Every Pipe Liner in the complete range of Buckeyes is recognized throughout the oil and gas industries as the leader in its field.

Wheel-Type in design, all Buckeyes offer many exclusive working advantages. For over 35 years, successful performance has demonstrated the efficiency of their operating principle and construction. Probably 95% of all major American cross-country pipe lines are laid in Buckeye-cut ditches. That is definite assurance that in buying a Buckeye you are investing in its dependable earning power, in its consistent daily service and usefulness.

The most modern mechanical innovations are always embodied in Buckeyes, but *only after these new ideas have proved entirely practical and profitable.* To earn a place in Buckeye standard assembly, they must be recommended by the world's leading pipe line engineers who dictate the specifications to which Buckeyes are built.

Our catalog, "BUCKEYE—The Pipe Liner", contains interesting construction and performance details. A copy of it will be gladly sent to any prospective pipe line ditcher owner or user upon request.

THE BUCKEYE TRACTION DITCHER COMPANY, Findlay, Ohio

for over thirty years

Buckeye

THERE'S A BUCKEYE SALES AND SERVICE OFFICE NEAR YOU

Working Model Shows Movement of Oil

Vertical Section Through Salt Creek and Teapot Lends Weight to Contention Wells in Latter Field Are Being Drained

By Tolbert R. Ingram

DENVER, Colo., Sept. 5.—A working model of an oil field, made to scale and so constructed that it shows at a glance the movement of oil, gas and water in the subsurface formations in the same manner as in the structure of which it is a reproduction, has been placed on display in the geological department of the University of Colorado at Boulder. It will prove to be of more than ordinary interest to oil men who may examine it, not only on account of its uniqueness and its completeness, but for the further reason that it throws considerable light on a subject about which there has been much controversy in recent years. It is a model of a vertical section through the Salt Creek and Teapot Domes in Wyoming, which shows how the drainage of oil could and would take place from the Teapot Dome into the Salt Creek Field.

The exhibit was presented to the University recently by Paul B. Whitney, petroleum geologist, who made the model after an intensive study of geological conditions in the Salt Creek-Teapot area. The construction of the model and its detailed accuracy are based upon the records of the U. S. Geological Survey, the U. S. Bureau of Mines and oil companies operating in those fields. Mr. Whitney formerly followed his profession in the Rocky Mountain Area and in other fields and in foreign countries, but for the past two years has been located at Santa Monica, California.

Drainage Controversy

Teapot Dome was withdrawn in 1915 for the creation of Naval Reserve No. 3 and from that time down to the present controversies have arisen at irregular intervals as to whether drainage was taking place from that structure into the Salt Creek Field. Proponents of both theories backed up their contentions with great masses of data and volumes could be written on both sides of the question, but in more recent years there has been some shifting of opinion and not least among these were branches of the federal government itself. The controversy has taken on many interesting and a few unique angles, and while private geologists are more generally in agreement that drainage does take place, some governmental agencies still hold to the other theory.

One of the unique developments which cropped out of the controversy was a mysterious report of how a Wyoming State and Oil Gas Inspector put some diamond dyes into a well on the Teapot Dome a few years ago only to discover a few days later that similar colors appeared in the wells in Salt Creek. A more substantial indication took place in the fall of 1928, however, when the Navy Department notified operators producing from Salt Creek leases adjoining Teapot that a proportion of production from these wells should be turned over to the government as it was probable that some of the oil was being drawn from the reserve. This was somewhat of a reversal of opinion by the Navy Department whose experts had previously held that drainage was not taking place. However, there was no question but that wells in Salt Creek near the reserve showed an increase in production when Teapot wells were shut in.

This is not, however, a discussion of whether Teapot is being drained by Salt Creek, but a description of the model which Mr. Whitney made to demonstrate his theories. It is enough to say that when he completed his miniature oil field, that of those who saw it and saw the real oil, gas and water move through the sand as in the natural state and observed the effect of shutting in some wells and opening others, that all were unanimous in voicing the opinion that drainage does take place to a damaging extent. The model so visualizes the subsurface conditions that even the layman will find no difficulty in forming an opinion.

Visualizes Oil Movement

Mr. Whitney named his model a "Petroterrascope."[1] It is an operative vertical section along the axial planes of the Salt Creek oil field and the Teapot Dome. The model is eight feet long, 20 inches high and two inches thick. An accompanying photograph shows the complete model. Between "A" and "B" it is made to a scale of 1,500 feet to the inch horizonal and 400 feet to the inch vertical. The Second Wall Creek sand was sawed entirely out of the model and celluloid windows were cemented watertight over the entire sand. The formations are upturned at the ends of the model as they in reality are along the mountain front, the end at the right of the picture representing how the formations outcrop at Casper Mountain, 30 miles to the south and the end at the left showing where they outcrop at Tisdale Dome, 15 miles to the northwest. Along the surface as shown in the model are noted the sections, townships and ranges along the axial planes and miniature reproduction of oil wells. It will be observed, also, that the model shows the faults which cut the structures and other actual conditions to the most minute detail.

Beneath the model are containers of oil and water. Rubber tubing connects the containers with pipes in the rear of the model. This equipment and the fluids furnish the means by which the model is operated. Water flows out the upper right and left hand ends on the surface and represents a river, or stream, issuing from the mountains, and in flowing over the upturned outcropping edges of the sand, fills the sand as in nature. Oil is then injected and it floats to the high points in the sand. The oil and water contact shows up as a level line in the sand as illustrated in the picture at "EE" and "FF".

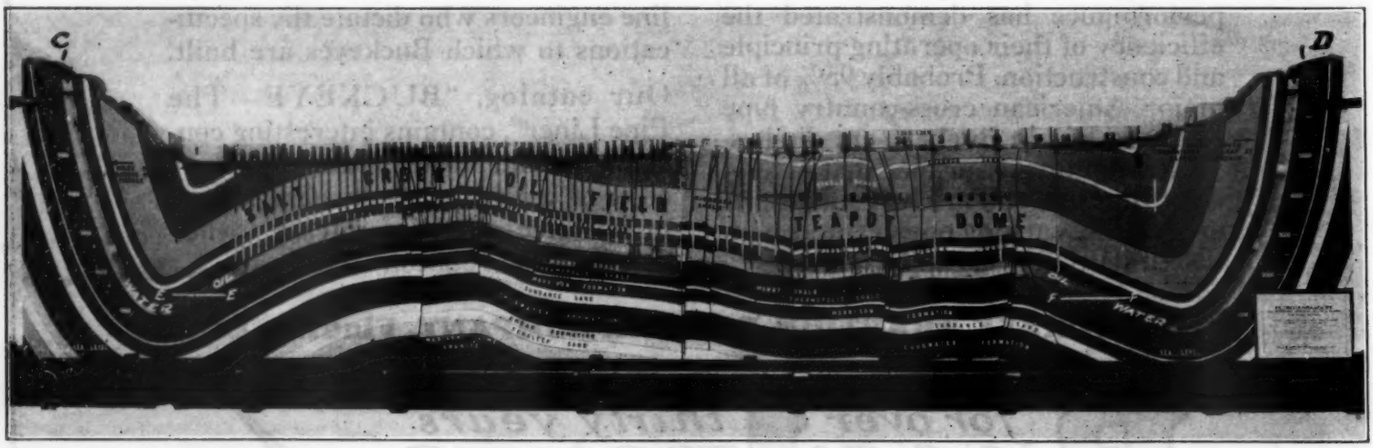
The wells beneath the derricks as shown in the model are made of glass tubes so that the observer may see the fluids flow from the sand up to the surface. The "wells," or tubes are equipped with rubber caps so they may be opened up or shut in. After the sand is properly filled with oil and water, water alone continuously enters the sand at "C" and "D," and as the wells flow, the oil-water contact ("EE" and "FF") rises higher and higher until finally all oil is exhausted and water alone fills the sand as it will do under natural conditions. The wells flow out on the surface and drain back into the containers in the box beneath the model and the operation may be repeated as often as desired.

Mr. Whitney made no attempt to duplicate the factors of time and sand porosity in the production of the model, but they do not affect the ultimate result. The model is an exact reproduction to scale of underground conditions as known to date, and the forces active within it are the same as those active in nature. The action, motion and results shown by the model reveal drainage proceeding as it ultimately will in the structure under the natural conditions. The method of demonstrating the drainage from one structure into the other is simple. By closing in the Teapot wells and permitting the Salt Creek wells to flow, the oil is flushed out of Teapot Dome, up and into the Salt Creek Field.

[1]Coined from Petro (Petroleum) Terra (Earth) Scope (Instrument for viewing) meaning "A device for visualizing the movement of oil underground, within the earth."

AGUILA TO OPERATE WELLS

NEW YORK, Sept. 7.—Seaboard Oil Co. of Delaware (formerly Mexican Seaboard Oil Co.) has contracted with Mexican Eagle Oil Co. (Aguila), Mexican operating subsidiary of the Royal Dutch-Shell combine, for the operation of Seaboard's Mexican producing properties by Aguila. The contract was closed through International Petroleum Co., Seaboard's Mexican subsidiary, and involves the payment of Aguila of a fixed fee for services specified in the contract. The deal involves the development by Aguila of certain nonproducing acreage owned by Seaboard Oil, on a royalty basis. The contract does not involve the sale of any of Seaboard's properties, and was made to obtain operating economies, according to the company's announcement.



Operation of the Petroterrascope: This model is 8 feet long, 20 inches high and 2 inches thick. The Second Wall Creek sand has been sawed entirely out and celluloid windows cemented watertight over the entire sand, front and back of model. The formations are upturned at the ends, as they in reality are along the mountain front. By means of rubber-tubing connecting pipes in the rear of the model with containers of oil and water in the box beneath, the model is operated. Water flowing out at "C" and "D" represents a river or stream issuing from the mountains, and in flowing over the upturned edges of the sand, fills it as in nature. Oil is then injected and it floats to the high points in the sand as in nature. The oil and water contact shows up as a level line in the sand as at "EE" and "FF". The wells beneath the derricks are glass tubes which enable the observer to see the fluids flow from the sand up to the surface. After the sand is properly filled with oil and water, water alone continuously enters the sand at "C" and "D", and as the wells flow, the oil-water contact "EE", "FF" rises higher and higher until finally all oil is exhausted and water alone fills the sand as it will in nature. The wells flow out on the surface and drain back into containers in the box beneath. The operation may be repeated as often as desired. By closing in the Teapot wells and permitting the Salt Creek wells to flow, the oil is flushed out of Teapot Dome, up and in the Salt Creek Field, as it naturally would be. The model is an exact reproduction to scale of underground conditions as known to date, and the forces active within it are the same as those active in nature. The action, motion and results shown by the model show drainage proceeding as it ultimately will in nature. Factors of time, and sand porosity alone are not herein duplicated, but they do not affect the ultimate result.

The BRIDGEPORT Shopper's PAGE

Quality and Service have always been recognized as Bridgeport's Strongest asset. Bridgeport men are willing, and know how to give Real Service. Bridgeport's guarantee is the assurance of Highest Quality. We stand back of our material at all times.

REDUCED RENTALS AND SALES PRICE ON REGULAR TYPE SWAN UNDERREAMERS

Former sale price of Regular Type Rental Bodies and parts reduced 25% to 50%.

Regular Type rentals reduced 33-1/3%.

Bridgeport Hardfacing for either Regular or New Type reduced 33-1/3%.

AT FORT MORGAN, COLORADO

Bud Burris, "an old timer with Bridgeport", will be located in the Fort Morgan, Colorado, territory. Bud is ready and willing to demonstrate what Bridgeport Service means.

SPECIAL ATTENTION WILDCAT WELLS

Bridgeport is in position to take care of requirements for most anything, anywhere—NIGHT OR DAY. Wire or phone any Bridgeport store collect. Many bargains in dependable used material.

WILLIAMSPORT WIRE LINES

Williamsport is one of the manufacturers which makes its guarantee good. You can depend upon highest Quality in every Williamsport wire line. Bridgeport is getting 75% of the wire business in some active fields. Satisfaction is the answer.

When you can use good used Wire to advantage, Bridgeport can many times fill your order at a saving to you.

SURFACE CASING

Bridgeport has on hand in several places best grade of used Casing, 10", 12½", 15" and 20". Get our prices before buying elsewhere.

SEAMLESS CASING

Bridgeport has stocks of good used Seamless Casing available in a number of places over the territory. Immediate service always. Call collect or wire our expense for quotations.

NEW AND USED DRILL PIPE

All sizes in stock. If your requirements demand new Drill Pipe, you can depend on our prices being right, and you will find Bridgeport interested and willing to do its part after the sale is made. Good used Drill Pipe with Tool Joints on, sizes 3½", 4" and 6⅝". You can save from 25% to 50%.

NEW AND USED STEAM GENERATORS

Our shop Rebuilt 1½ KW Generators for sale as low as $75.00.

On account of overstock, special discount of 25% on—

5—1½ KW New Generators.
1—3 KW New Generator.
5—1½ KW Factory Rebuilt Generators.

NEW STEEL ROTARY HOSE

Bridgeport has an overstock and offers a special discount of 25% on two New Best Grade Steel Hose. You can't afford to overlook this.

FISHING TOOLS

Low prices and attractive terms on anything for the cable hole. Several Branches carry many necessary fishing tools for Rotary Work.

HUGHES PRODUCTS

Hughes has never yet sacrificed Quality for volume or price. The reputation of Hughes tools is second to none. Bridgeport carries

Hughes Tool Joints
Hughes Rock Bits and Cones
Hughes Valves
Hughes Core Bits

Complete stocks always on hand, backed by Bridgeport Service. Prices, too, are always right.

WE WILL BUY

Bridgeport is in the market at all times for *all sizes, good used Seamless Casing*, large sizes Lapweld, 2½" Upset Seamless Tubing, 2, 3 and 4" Line Pipe; Complete Rotaries and separate units. Wire or write Dependable Used Tool Department, The Bridgeport Machine Company, Wichita, Kansas.

BRIDGEPORT MACHINE COMPANY

Wichita, Kansas

Branches in all principal oil fields of Kansas, Oklahoma, Texas and New Mexico

Foreign Representatives: Lucey Products Corporation, 3505 Woolworth Bldg., New York City, U. S. A.

PHILLIPS LINE CARRIES VARIETY OF PRODUCTS

(Continued from Page 14)

into the residences and for general plant use, including fire fighting.

A tank not hitherto mentioned, smaller than the others but highly important, is a 22,000-gallon storage tank containing liquid butane for fuel purposes in the terminal dwellings, laboratory, office building, etc., and for generating the steam employed in cleaning tank cars. This utilization of what long has been a waste product in refineries and natural gasoline plants marks a signal advance in conservation.

Provides Fuel for Its Own Operation

Similar use is made of butane for fuel purposes at each of the eight pump stations on the pipe line. These stations, in addition to the one in Borger, are at Laverne, Okla.; Attica, Wichita, Cassody and Paola, Kans.; and Harrisonville and Jefferson City, Mo. High speed centrifugal pumps are used in each of these stations, and all are driven by engines fueled with gas derived from the liquid butane taken from the pipe line. In the fact that the pipe line itself carries the fuel material needed to operate it the company is regarded as being in a peculiarly advantageous position.

Three butane storage tanks are installed at each station. Each has the same capacity, 22,000 gallons, as the one at the terminal, so there is a total butane storage capacity at each station of more than 60,000 gallons, enough to provide fuel for several months. The pump station engines are of the 6-cylinder, 4-stroke cycle type, developing a horsepower of 260 at 300 r.p.m. Butane gas taken off as a by-product at the natural gasoline extraction plants in the Borger Field is compressed into a liquid and in that form is slugged through the pipe line. Whatever is wanted for fuel use at the pump stations is taken directly from the slug and run into the storage tanks, there to be drawn on as needed. Steel gauge cocks with high-pressure glasses show the fluid level of each tank.

In using the butane gas as it comes from the storage tanks it is run through the reducing regulator and then through the mixing valve of the engine, where it is mixed with the proper proportion of air to effect perfect combustion. The system by which the butane is carbureted for use as fuel at the terminal and at the pump stations was devised by the Philfuels department of the Phillips Petroleum Co.

Experimental Line Answers Questions

A question which had to be answered, and answered with certainty, before work started on construction of the Phillips pipe line was that relating to the practicability of moving a variety of products, differing widely in volatility, through the same line. To obtain the answer to this question an experimental line was operated for a month under the direction of A. W. Hubbell, general superintendent of the pipe line company, and T. K. Willett, chief chemist. For purposes of the desired tests two 3-inch lines 12 miles long running between Wetumka and Cromwell in Oklahoma and owned by the Phillips Petroleum Co. were employed. One of these had been used as a residue gas line and the other as a loading line. The two were tied together at the Cromwell end, thus giving a line 24 miles long, with pumps at the Wetumka end.

Since the skin friction is greater in a 3-inch line than it is in an 8-inch line, it was assured that any operations conducted through the 24-mile experimental line between Wetumka and Cromwell could be conducted with even a greater degree of success through the 681-mile line between Borger and St. Louis. The primary problem involved was believed to be that of contamination of the different products. Could one pipe line carry such a volatile substance as liquid butane, the heaviest grade of refinery gasoline and the materials of varying distillation range that lie between these extremes without danger of serious contamination? Mr. Hubbell and Mr. Willett say this question was answered fully and absolutely by tests conducted through the experimental line. Trial slugs sent through the 24-mile line revealed that mixture of one product with another was so slight as to be of no import in practical commercial operations.

Difficulties Had Been Magnified

In their consideration of what was likely to take place in a pipe line containing substances of pronounced differences in volatility Mr. Hubbell and his associates arrived at the opinion that the dangers of contamination probably had been magnified. Their tests with the Wetumka-Cromwell line confirmed this opinion.

The Phillips Petroleum Co., known as the largest producer of natural gasoline in the world, is estimated to be making about 75 per cent of this product now coming out of the Texas Panhandle. Its production in that field at the present time is placed at 12,000 bbls. daily. The Borger refinery is running about 15,000 bbls. of crude oil a day, with a gasoline output from it of about 8,000 bbls. The refinery has a capacity of 18,000 bbls. To make motor fuel about 4,000 bbls. of natural gasoline is blended with 8,000 bbls. of refinery gasoline for use in the warmer months of the year. The proportions of these constituents are changed of course to suit the season, and in cold winter weather the motor fuel contains about equal quantities of the two materials to give the mixture the greater volatility desired.

Slugs What It Needs

To suit the needs of the shipper the company can slug through its new pipe line either the refinery gasoline, the natural gasoline or the finished motor fuel made from them. Natural gasoline is used in making all Phillips Petroleum Co. motor fuels. Although the Phillips Petroleum Co. is able to use almost all of the natural gasoline it produces, it is making more of this material at this time than is needed at the Borger refinery for combining with refinery gasoline. Thus a small percentage of the natural gasoline sent through the pipe line from Borger is sold to other refining companies.

In pursuance of a contract between the Phillips Pipe Line Co. and the Great Lakes Pipe Line Co. an 8-inch branch line extends from the Phillips line to the Eldorado, Kans., refinery of the Skelly Oil Co., a distance of 7 miles, and this branch forms one section of the line by which gasoline from the Skelly refinery is transported to the Great Lakes terminal near Kansas City, Kans. As already mentioned, a 6-inch branch extends from the Phillips line to the Phillips Kansas City terminal. This branch taps the main line at Paola, Kans. The Kansas City terminal of the Phillips company contacts with the Great Lakes system at that point. Thus Skelly gasoline is carried into the Phillips main line near Eldorado, then about 130 miles northeast through the main line to Paola, then about 60 miles north in the 6-inch line to Kansas City, where it is delivered to the Great Lakes terminal. This operation is performed without mixing the Skelly gasoline with any other product.

The St. Louis terminal is in charge of Earl L. Reed, superintendent, who supervised the installation of the plant. Mr. Reed formerly was superintendent of the Phillips Petroleum Co.'s natural gasoline plant at Pioneer, in the Ranger district, Texas.

Growing Importance of Butane

It will be observed that the growing commercial importance of butane has a cardinal place in the Phillips Pipe Line Co.'s operations. Uses already found for this erstwhile supposedly worthless product include these:

For heating operations where the fuel consumption is large and where an economical, clean and readily controlled fuel is necessary, as in heat-treating processes and all kinds of furnace work. Butane is adapted to this exacting large-scale use owing to its purity, constant quality, high thermal value, high flame temperature and flexibility of distribution. Commercial butane is an excellent standby fuel for industrial plants using either natural or manufactured gas, the supply of which may be interrupted or cut off.

For domestic fuel, in which case it is delivered to the consumer, already mixed with air, through service pipe lines. Communities that do not have city gas service are provided thus with gas, and butane becomes an ally of the gas companies, as suburban districts may be serviced and held pending the extension of mains. Part of the butane received at the Phillips Pipe Line Co.'s terminals is transported in tank cars to various distributing units, where it is stored in tanks and then, after being mixed with air, distributed to homes by ordinary service line systems.

As a base material for manufacturing gas.

As an enricher for manufactured gas, replacing gas oil to carburet producer gas, blue water gas or other gases of relatively low thermal value to the required B.t.u. standard.

As a solvent and raw material for the manufacture of chemical compounds.

Butane is shipped, handled and stored as a liquid under pressure in specially built tank cars or other containers. The tank cars, which have no bottom outlet, are unloaded by pressure differential or by pumping.

BIG WELL AND IMPORTANT MERGER FEATURE N. Y.-PENN GAS FIELD

By Special Correspondent

WELLSBORO, Pa., Sept. 5.—One of the largest gas wells yet completed in the Tioga gas field in Tioga County, Pennsylvania, is the Allegany Gas Co.'s No. 1 Leslie, at Elbridge Corners, which started at 17,000,000 feet and increased in a couple of days to 40,000,000 feet. The gas was uncovered at 4,087 feet, 18 inches into the Oriskany sand. It was the seventeenth gas well in the Tioga Field, and in volume has been exceeded by only two wells, the Penn United Gas Co.'s big well on the Meaker farm and the Lycoming Gas Co.'s well on the M. P. Close farm. Another well that may measure up to the Allegany Gas Co.'s new gas gusher is the Lycoming Gas Co.'s test on the Herrington farm, which was shut in at once after the top of the gas pay was uncovered and the well started off at the rate of 24,000,000 feet. It was not given a complete test before it was shut in.

The Lycoming Gas Co. has plugged and abandoned No. 1 Shoemaker in Lawrence Township, which was drilled through the Medina sand and dry. They are trying to drill past a cemented in bailer in the No. 1 Ida Wheeler, Delmar.

The Pennsylvania Power & Light Co., through its subsidiary, the North Branch Development Co., has two new locations, one on the Middaugh farm, Lawrence, an offset to the Penn United Gas Co.'s G. Burdette, and another on the W. W. Colegrove farm, Lawrence Township, where they are digging a cellar.

The East Penn development is still swedging pipe at No. 1 Davey, in Richmond Township, which has parted casing almost a mile underground.

The next well to be drilled in will be on the Wilston & Kule farm in Lawrence Township, where the Pennsylvania Realty & Investment Co. is bailing after casing and cementing and planning to drill in today. The same company's No. 1 Barcroft is down 2,989 feet; drilling at 4,195 feet at the Bertha House, Farmington; building a rig on the Colegrove farm, Lawrence, and rigging up on the Middaugh farm, Lawrence.

Mellon & Pollock's No. 1 Van Zile, in Lawrence Township, down to 3,700 feet, is being cased and cemented this week and will be drilled in the first of the week.

W. W. Keefer is drilling at 1,200 feet on the Judd Schofield farm, Richmond Township. The Cayuga Gas Co. is drilling through cement on the Weilbold farm, Elk Township, at 5,050 feet. The Wells Corp. is down to more than 4,800 feet on the county farm, Charleston Township.

The Penn United Gas Co. is drilling at 1,260 feet on the Boom farm, Farmington; drilling at 2,210 feet on the Ida Russell, Farmington; spudding at 135 feet on the Leander Gee, Farmington, and drilling at 4,590 feet on the Towanda fairgrounds, Bradford County.

Tioga's Big Wells

Figures on the gas development map, kept up by engineers and posted in the Baron Steuben Hotel in Corning, N. Y., credit the Tioga Field with 17 gas wells in the New York-Pennsylvania gas field, which are given a potential capacity of 389,400,000 feet or an average of 21,455,000 feet per day per well. The list of big gassers and their initial production follows:

Allegany Gas Co.:	
No. 1 Leslie, Farmington*	40,000,000
No. 1 Palmer, Farmington†	2,600,000
No. 2 Palmer, Farmington*	24,000,000
No. 1 Manning, Farmington*	13,300,000
No. 1 Learn, Farmington*	22,000,000
Penn United Gas Co.:	
No. 1 Meaker, Lawrence*	70,000,000
No. 1 G. Burdett, Lawrence*	7,000,000
Lycoming Gas Co.:	
No. 1 Farr, Lawrence*	14,000,000
No. 1 E. W. Close, Farmington*	26,000,000
No. 1 Herrington, Lawrence*	24,000,000
No. 1 M. P. Close, Lawrence	70,000,000
No. 1 Hoyt, Farmington*	13,500,000
No. 1 Boom, Lawrence*	20,000,000
No. 2 E. W. Close, Farmington*	26,000,000
No. 1 Place, Farmington†	4,500,000
No. 1 Ashton, Farmington*	10,000,000
Burns Gas & Oil Co.:	
No. 2 Smith	2,500,000

*Shut in. †Producing.

Wayne-Dundee Activities

The Wayne-Dundee Field north of Corning, N. Y., has 75 gas wells with a potential of 348,800,000 feet.

The Belmont Quadrangle Drilling Co. completed its twenty-eighth well in the Wayne-Dundee area. Its No. 1 Hayes came in at 5,000,000 feet. The well was drilled 12 feet into the Oriskany sand topped at 2,044 feet.

Another merger in the Wayne Field, in which the Huron Gas Co. acquires the gas interests of the Olean Wayne Producing Co. and the Olean Finger Lakes Land Co., Wayne Field operators, was announced by Arthur W. Shaner, secretary of the Huron company, and one of the most prominent men in the Wayne development.

The deal completed sees the transfer of ownership of five wells owned by the two companies, and all the acreage held under lease between them. A flow of nearly 20,000,000 feet of sweet gas is thereby available to the Huron company for marketing purposes. While no contract has been announced it is understood that the Huron interests are negotiating with a Wayne Field operator for the sale of gas acquired in the transfer. The Olean Finger Lakes owned three producers in the field and Olean Wayne two, averaging about 4,000,000 feet capacity each.

The agreement is but one of several mergers and gas sales contracts completed in the field recently, and marks a step toward the completion of the development. When the contract for the sale of the gas in this most recent transaction is completed, gas from every well in the field will have a market through the several large producing companies. Future wells will be drilled under the name of the Huron Gas Co.

E. H. JENNINGS, JR., DEAD

Edward H. Jennings, Jr., 42 years old, son of the late Edward H. Jennings, and member of the firm of E. H. Jennings Brothers Co., oil producers, Columbia Building, Pittsburgh, Pa., died suddenly on Friday, September 4, at his home, Howe Street and Dennison Avenue, Pittsburgh, Pa.

Cracked gasoline is better than straight-run but the motorist doesn't know it Why should he? Nobody tells him

Sometimes the jobber or dealer himself doesn't know it

Why not sell cracked gasoline always as cracked gasoline?

Why not get more money for it? It's worth it

Dubbs cracked gasoline is always a premium product

It can be made at lowest cost

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Universal Oil Products Co
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Oklahoma Production Declines Again

Governor's Shutdown Order Results in Big Decrease in Output of Oklahoma City Field During August

By W. A. Spinney
Staff Correspondent, Oklahoma Fields

Daily average production from Oklahoma fields declined during the week ending September 5 approximately 9,500 bbls. With martial law now starting on its second month in the State, there is some talk that attempts have been made for a compromise and lifting of the shutdown order in return for a posted price of approximately 85 cents a barrel. Governor Murray stated, as the result of opening the East Texas Field, Texas was losing the fight after it had won it, and continued to demand $1 a barrel, and the adoption of what he calls ratable taking from unitized sands before the shutdown order in Oklahoma is lifted.

He also said if his back is forced to the wall, he will initiate a bill that will give him authority to issue bonds, build state-owned refineries, and purchase crude oil, and pay for the crude and refineries from a tax on all operators' oil incomes. He is reported to have said: "I'll use their own money to whip them."

The Oklahoma City Field had a total of 829 producing wells as of September 5, when the Phillips Petroleum Co.'s No. 2 Mosey, SE cor. NE NW, Section 3-11-3w, in the north end of the field, near the wholesale district of the city, flowed 8,636 bbls. of oil in four hours. The gas was estimated at 75,000,000 feet a day. The well was completed and flowed through the 9-inch casing from the Wilcox sand at 6,322-6,482 feet.

Oklahoma City Output Down

Total production from the Oklahoma City Field for the month of August was 701,680 bbls. The first four days of the month before the executive shutdown was issued and went into effect, the total production was 538,740 bbls. The field was producing under the 6 per cent proration basis. The daily average production for the month was 22,635 bbls. The last 27 days of the month the field made 162,942 bbls., which was a daily average of 6,035 bbls. of oil. Most of the oil was from new producers and wells classified as gas wells. A total of 16 new wells were completed during the month, flowing a total of 115,709 bbls. of oil.

Compared with the July totals, production for the month of August shows a decrease of 4,249,740 bbls. of oil. The July total production was 4,951,420 bbls.

Pipe line shipments from the Oklahoma City Field for the month of August were 813,990 bbls., a daily average of 26,260 bbls. of oil. The total July shipments were 4,849,257 bbls., a daily average of 156,427 bbls. The decrease in the shipments from July amounted to 4,035,265 bbls. of oil.

According to the field umpire, Otto Bradford, the Oklahoma City Field record shows 1,492,625 bbls. overproduced and a total of 4,335,200 bbls. underproduced as of September 1. A check of the figures shows the field has approximately 400,000 bbls. less oil than it had the first of August in lease storage. Actual potential tests from the field show a total potential of 8,421,300 bbls. of oil, gauged by the eight-hour initial flow and multiplying the gauge by three to get the 24-hour gauge and then deducting 3 per cent. There is some question among operators which will be decided later on what to do with the underproduced wells in the Oklahoma City Field.

Field Underproduced

According to the umpire's report of September 1, 42 companies in the Oklahoma City Field had wells underproduced and 17 companies had wells overproduced.

In the underproduced list, T. B. Slick estate and C. F. Urschel, with 94 wells in the field, leads with 887,935 bbls. of underproduced oil. Other companies underproduced with wells and amount follows:

Company—	Wells	Amount
I. T. I. O.	290	599,784
Phillips	51	611,364
Anderson-Prichard	27	288,513
Wirt Franklin	39	220,981
Cromwell-Franklin	31	192,681
Denver P. & R.	5	115,526
J. E. Mabee and others	4	108,465
Dengall	4	106,570
British-American	9	96,076
Century	5	80,286
Addition	1	44,819
J. C. Shaffer	6	44,329

The largest amount of overproduction in the big field was recorded by the Champlin Refining Co. which recently operated its wells in the Oklahoma City Pool on a basis of 10,000 bbls. a day under Federal Court injunction. The Champlin company is overproduced 467,538 bbls. of oil, according to the report. Others are:

Company—	Wells	Overprod.
Hall & Briscoe	2	161,301
Sinclair Oil & Gas	54	119,975
Continental	5	11,372
Marco	1	26,289
Kedberg	1	24,608
R. A. McArthur	2	17,123
Scott & Co.	1	18,900
Danciger	1	9,285
American	1	9,000

Drilling Operations

The Oklahoma City Field is the most active area in the State at the present time. A new location was announced on the west side of the field during the week. Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 2 Egermier, NW cor. SW SW, Section 23-11-3w, is a new location north of the same companies' No. 1 Egermier, which extended production a half mile to the west by making approximately 20,000 bbls. a day. The new location is on the southwest side of the field where the completion of several large wells has increased interest on how far the producing area will extend.

Wells that were completed during the week and those that were completing their initial eight-hour flow, and new locations were as follows: Springrose Oil Co.'s No. 1 Springer, NW cor., Section 2-11-3w, is a new location in the north end of the field. It is the south offset to a new well rated at 50,000 bbls. a day. Phillips Petroleum Co.'s No. 1 Qualls, SW cor. NE SW, Section 10-11-3w, in the residential district of Capitol Hill of Oklahoma City, was bailed in for an estimated 12,000 bbls. a day and the gas was estimated at 25,000,000 feet. The oil and gas were found in the Wilcox sand at 6,408-6,530 feet. Watchorn Petroleum Co.'s No. 1 Traders Compress, NW cor. SE SE, Section 34-12-3w, in the extreme north end of the Oklahoma City Field, is estimated to be making 65,000,000 feet of gas a day and it made 15,575 bbls. of oil in eight hours on its initial gauge. The total depth of the well is 6,446 feet in the Wilcox sand.

The next test that is expected to be brought on production in the Oklahoma City Field is Wilcox Oil & Gas Co.'s No. 1 Butcher, SE cor. SW NW, Section 3-11-3w, near the wholesale district on the northwest side of the field. The Wilcox sand was found from 6,350-6,515 feet and it is expected to make a large producer as the test drilled 165 feet of Wilcox sand.

Scott & Co.'s No. 1 Ashby, NW cor., Section 14-11-3w, which has been reconditioned and plugged back, was open and made 15 bbls. of oil an hour and approximately 10,000,000 feet of gas a day and some water. The test was plugged back from 6,505 feet to 6,474 feet. It has produced 1,400 bbls. of oil.

Planning for Future

The future possibilities for production from Oklahoma are being studied by operating companies. Districts which are said to be undergoing a survey with magnetometers, seismographs and other geophysical instruments are Payne, Logan and Garfield Counties and the area between the Greater Seminole Field and Oklahoma City Pool. It is reported that companies are quietly securing acreage in these areas.

Oil companies have been releasing acreage in the extreme western part of the State where several test wells were drilled and only one of those found gas production.

In the area between the Greater Seminole area and Oklahoma City, one flush field has been found, the West Chandler Pool, in Lincoln County. This field is believed to have considerable possibilities which can only be determined by future drilling. Three horizons have been found productive in the pool, which has only been partially developed, and is now shut in under the governor's order. The area consists of the western part of Pottawatomie County, eastern Cleveland County, southern Lincoln County and all of Oklahoma County.

In the older producing areas in the State where the wells are in the stripper class, producers are now operating the wells at capacity as this kind of production has not been affected by Governor Murray's order. These areas have become important since the flush fields have been ordered shut down. About three months ago this kind of production was not considered important as the purchasers of crude were attempting to fill their requirements from the flush areas of the State.

Older Areas Active

In the older areas in the State activity continues at a normal rate. In Creek County, among the early counties to produce oil, in the Mannford district, the Westfall Drilling Co.'s No. 1 A. McGee, SW cor., Section 25-19-8, is estimated at 200 bbls. of oil a day from the Skinner sand at 2,220-45 feet. It made 100 bbls. of oil the first 12 hours after a 140-quart shot. The Iron Mountain Oil Co.'s No. 1 Lena John, SW cor. SW SE SE. Section 4-17-10, Creek County, may be completed as a gas well. The gas was found in shallow sand at 1,075 feet, and was estimated at 250,000 feet a day.

In Wagoner County, J. E. Weible and others' No. 1, NW cor. SE, Section 5-18-16, was completed for 1,000,000 feet of gas a day. The same operators have started another test offsetting the well to the west. J. E. Weible has obtained franchises to supply domestic gas service to several towns in Pittsburg County and it will mean that several more wells will be drilled to increase the gas supply.

In southern Oklahoma, new operations are reported in the Tatums Field in Carter County. The field is now shut down under the martial law and considerable new work is expected to start when the shutdown is lifted. The new operations include G. Pace's No. 2 Mitchell, SW cor. NE NE, Section 30-1s-2w, and Chickasha Natural Gas Co.'s No. 1 J. Mitchell, SE cor. NW NW, Section 13-1s-3w.

In Stephens County, Duncan-Wichita Falls Pipe Line Co's No. 6 Nigh, in Section 34-1s-8w, an old well drilling deeper

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WILDCAT OPERATIONS IN OKLAHOMA

NORTHERN OKLAHOMA

ALFALFA COUNTY

Company, farm and location— Remarks:

Smith Brothers' No 1 Forbes, SE cor. NW NW, Sec. 12-27-11w ..... Shut down 1,232 ft.

J. W. Bailey's No. 1 Acre, SW cor. NE, Sec. 14-24-11w ... Shut down 5,502 ft.

ATOKA COUNTY

Campbell's No. 1 Baird, NW NE SW, Sec. 31-1-13 ..... Rig.

Edgerton Edwards' No. 2 Rowland, SE NE NW, Sec. 6-1-15 ..... Rig.

BECKHAM COUNTY

Price-McFann's No. 1 Webster, C SW SW, Sec. 34-8-26w .. T. D. 2,344 ft.; plugged back to 1,890-1,900 ft.; 1,500,000 ft. gas.

Mid-Continent's No. 1 Schaff, C NE SW, Sec. 22-11-22w .. Waiting on cement to set 430 ft.

Mid-Texas Co.'s No. 1 Sidell, NE cor. SW SW, Sec. 17-2-22w ..... Shut down 2,550 ft.

White et al's No. 1 Green, SW cor., Sec. 34-10-24w ..... Shut down 3,575 ft.

BLAINE COUNTY

Washoma Oil Co. et al's No. 1 Phillips, C NW SW Sec. 13-19-10w ..... Shut down 5,115 ft.

CADDO COUNTY

Abernathy & Brown's No. 2 Houston, Sec. 24-6-13w ..... Shut down 1,115 ft.

COAL COUNTY

McCraw Oil Co.'s No. 1 Ward, NE SE, Sec. 35-1-8 ..... W.O.C.S. 1,846 ft.

Whitney et al's No. 1 Miller, SE NE, Sec. 16-2-8 ..... Shut down 760 ft.

COMANCHE COUNTY

G. W. Stogner's No. 1 Doebel, C SW SW, Sec. 3-3-9w ... Shut down 1,450 ft.

LE FLORE COUNTY

H. E. Dowd et al's No. 1 Unknown, SE NE, Sec. 17-3-22 .. Drlg. 975 ft.

GARFIELD COUNTY

E. L. Love et al's No. 1 White, SE cor. NW, Sec. 9-24-6w .. Shut down 5,850 ft.

GARVIN COUNTY

Malarnee et al's No 1 Phillips, NE SW SE, Sec. 34-2-2w .. Shut down 4,830 ft.

Skinner's No. 1 Elrod, SW cor., Sec. 13-2-3 ..... Shut down 1,120 ft.

GREER COUNTY

Dovell et al's No. 1 Capell, NW cor., Sec. 1-7-22w ..... 5,000,000 ft. gas 1,455-65 ft.; T. D. 1,760 ft.

French's No. 1 Murphy, SW NW, Sec. 23-7-21w ..... Shut down 1,645 ft.

HARPER COUNTY

Sinclair Oil & Gas Co.'s No. 1 Howell, C SW SW, Sec. 14-26-24w ..... 30,000,000 ft. gas 5,350-5,400 ft.; T. D. 5,539 ft.; shut down; sprayed 50 bbls. gasoline.

HASKELL COUNTY

Bowers Oil & Gas Co.'s No. 1 Black, Kent Townsite, SE SW SW, Sec. 31-8-20 ..... 1,000,000 ft. gas 710-50 ft.; T. D. 850 ft.; completed.

Ault et al's No. 1 Harrison, CWL SE NE, Sec 14-9-19 .... Shut down 650 ft.

Ault et al's No. 1 Hall, NW SW SW, Sec. 14-9-19 ..... Shut down 2,000 ft.

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Ritz-Canton Price Order Is Rescinded

Kansas Crude Oil Buyers Not Forced to Pay $1 for Output of That Field Due to Limited Gathering Facilities

By W. A. Spinney
Staff Correspondent, Kansas Fields

Crude oil production in Kansas showed a small decline for the week ending September 5, due to the curtailment of production in the Ritz-Canton Pool, in McPherson County. The State averaged approximately 98,500 bbls. of oil a day.

The order requiring the purchasing companies to pay $1 a barrel for any oil taken from the Ritz-Canton Pool, made about 10 days ago in an effort to help support the States of Oklahoma and Texas in the campaign for $1 a barrel oil, was rescinded September 3, by the Kansas Public Service Commission. The commission's previous order for a 90 per cent shutdown remains in effect.

The action of the commission was understood to permit the taking of oil at the rate of 10 per cent of the field's potential output, which some place at 120,000 bbls. a day, without any requirement as to price. The posted price of the major purchasers in the field, as well as in the balance of the State, ranges from 46 to 70 cents a barrel, with an average of 68 cents a barrel for Ritz-Canton crude oil.

Shell Petroleum Corp. withdrew as a purchaser of crude oil in the Ritz-Canton Pool, but is continuing to handle its own production from the field.

Since the announcement that some of the pipe line companies were withdrawing from the Ritz-Canton Field as purchasers of crude, the daily average shipments from that area have only been approximately 1,500 bbls. The producers are permitted to produce and ship 10 per cent of the field's potential, which would amount to approximately 12,000 bbls. a day.

Chat Wells a Problem

The chat producing wells in the Ritz-Canton Pool were a problem which the Public Service Commission was unable to solve. Production from the chat wells in the field soon filled all the available lease storage and in order to provide additional storage, it was necessary to ask the other pipe line companies who were paying a top price of 70 cents a barrel for crude oil, to empty the tanks. Since the Phillips Petroleum Co. was the only company that was paying $1 a barrel for oil, the Public Service Commission felt it was unfair to force the company to maintain this price, while all the other pipe line companies were allowed to take the overflow on their 70 cents a barrel schedule.

Kansas Public Service Commission decided that the Eastborough Pool was not making enough oil to warrant a shutdown. The commission was considering shutting down the Eastborough Pool, and the Voshell Pool, in McPherson County. Producers in the Ritz-Canton Field requested the Public Service Commission to shut in the other two pools named. It is believed the commission will refuse to shut down the Voshell Pool.

The operators in both the Eastborough and Voshell Pools stated that a large quantity of water was coming from the wells and to shut them down might cause damage to the properties.

Several operators with production in the Ritz-Canton area told the commission that it was unfair to shut wells down in the Ritz-Canton Field and let the production from the Eastborough and Voshell Pools remain wide open.

Big Gas Reserve

The Ritz-Canton Field has developed into probably the largest gas reserve in the State. Most of the gas is from high-pressure wells. The potential open flow of gas from the field is estimated at approximately 1,250,400,000 feet of gas a day, since the completion in August of six new gas wells, with a combined open flow of 93,500,000 feet of gas daily.

In addition to the gas wells there were six oil wells completed in the county, in August, adding 16,610 bbls. initial production to the potential output of the county. Two of the wells were completed in the Voshell Pool, and the balance in the Ritz-Canton Field. Six new gas locations were made in the county in August and seven for oil.

The producing area in the Decker gas pool, in McPherson County, was extended by Youker & Dieter's No. 1 Lagree, C SW NW, Section 7-19-1w, on the northeast side of the field. The well had 3,000,000 feet of gas a day from the chat at 2,926-67 feet. The gas well extends production approximately a mile to the east.

The first action in the supposed leasing and drilling campaign in the central part of Kansas, is the announcement that the Magnolia Petroleum Co. had paid approximately $9,800 for a lease on a strip of acreage 2 miles long consisting of 640 acres, located about 4½ miles southwest of the Schurr Pool. The acreage is in Township 20-11w, in Barton County, and near a large block of acreage held by the Magnolia Petroleum Co.

On the Canton Townsite, on the east side of the Ritz-Canton Pool, in McPherson County, J. H. Reid and others' No. 1 Keefer, in Lot 16, Block 16, Section 21-19-1w, was spudding.

Schaffer Oil Co. and others' No. 1 Magill, SW cor. NE, Section 7-20-1w, has been attempting to land casing on top of the chat at 2,935 feet. The test is located about a half mile east of production in the south end of the Ritz-Canton Field.

Continental Oil Co.'s No. 1 Black, in Section 16-25-1, an old chat producer in the Goodrich Pool, in Sedgwick County, had the top of the Viola lime at 3,337 feet and was straightreaming the casing. A showing of oil was found at that depth, but due to a hole full of water from the chat, it was difficult to determine conditions at the bottom of the hole. The 6-inch casing will be cemented on top of the Viola lime and the test drilled deeper.

Magnolia Petroleum Co.'s No. 1 McLaughlin, NW cor., Section 31-28-1w, a wildcat in Sedgwick County, topped the Viola lime at 3,779 feet and was drilling at 3,792 feet on the last report with nothing showing. The 5-inch casing was landed at 3,743 feet.

Chautauqua County

Leighty and others' No. 3 Lemert, SW cor. SE NE, Section 36-34-9, has drilled deeper to 1,162 feet and now shut down.

Cowley County

Slocum and others' No. 1 Union State Bank, SE cor. SW SW, Section 16-35-4, is spudding.

Elk County

Denton and others' No. 1 Donnel, C NW SE, Section 12-30-9, has been abandoned at 1,471 feet.

Greenwood County

Marcus and others made location for No. 1 Morris, NW cor. SE SW, Section 5-24-12.

Marion County

Maydwell and others' No. 1 La Master, NW cor., Section 31-22-4, has been abandoned at 650 feet.

McPherson County

Bradley Brothers and others made location for No. 1 Russell, SE cor. NE NE, Section 23-19-2w. McPherson Oil & Gas Co. and Shell Petroleum Corp. made location for No. 1 Russell, C NW NE Section 23-19-2w. Vernon Oil & Gas Co.'s No. 1 Drum, NE cor., Section 35-19-2w. is rigging up. Lario Oil & Gas Co. and Shell Petroleum Corp. made location for No. 1 Lewis, NW cor., Section 36-19-2w.

Rice County

Rogers and others' No. 2 Rainey, SW cor. NW SE, Section 3-21-6w, is a rig under construction.

Stevens County

Texas Interstate Pipe Line Co.'s No. 1 Hamm, C SW, Section 3-33-37w, has been completed for 3,600,000 feet of gas in sand 2,520-2,798 feet.

WILDCAT OPERATIONS IN KANSAS

(Descriptions are East unless marked otherwise)

Company, farm and location—	Remarks:
BARTON COUNTY	
Syndicate Oil Co.'s No. 1 Boerts, NW SE SE Sec. 13-18-13w	Shut down 2,440 ft.
Skelton Oil Co.'s No. 1 Ott, C SE SE Sec. 16-19-14w	Drlg. 2,647 ft.
McCool et al's No. 1 Tsern, NW SE NE Sec. 13-20-11w	Drlg. 1,900 ft.
CHASE COUNTY	
Borden et al's No. 1 Atkinson, NW SE Sec. 18-18-7	Rig on ground.
CLAY COUNTY	
Crystal Oil et al's No. 1 Tivier, SW cor. Sec 19-8-2	Shut down 2,700 ft.
COFFEY COUNTY	
Heyburg's No. 1 Kroft, SE SW SE Sec. 30-22-14	Shut down 1,565 ft.
DICKINSON COUNTY	
Severs et al's No. 1 Lavengood, NE SW Sec. 13-13-2	Shut down 4,170 ft.
ELLSWORTH COUNTY	
Keyes Bros.' No. 1 Gregory, SW cor. Sec. 23-16-9w	Shut down 2,735 ft.
Alyward et al's No. 1 Stratman, SE NW SE Sec. 1-17-10w	Silicious 3,255-71 ft.; 117 bbls. 2 hrs.; shut in; est. 2,000 bbls.; no pipe line connections.
Aladdin Pet.'s No. 1 Stoddenberg, C SW Sec. 22-16-10w	Silicious lime 3,322-47 ft.; est. 1,500 bbls. a day; shut in.
Milton et al's No. 1 Kester, SE NE Sec. 6-14-9w	Shut down 3,540 ft.
FINNEY COUNTY	
National Ref. Co.'s No. 1 Wells, SW cor. Sec. 30-23-30w	Rig on ground.
FORD COUNTY	
Carter Oil Co.'s No 1 Everett, C NE Sec. 22-29-21w	Drlg. 5,691 ft.
Swain et al's No. 1 Taylor, C NW Sec. 21-25-24w	Shut down 5,105 ft.
GRAHAM COUNTY	
Schleimeyer et al's No. 1 Clark, SW NE NE Sec. 11-9-25w	Shut down 4,648 ft.
HASKELL COUNTY	
Tree Oil Co.'s No. 1 Warner, C SE Sec. 29-30-34w	Rig.
HARVEY COUNTY	
Liggett et al's No. 1 Davis, SW SE NE Sec. 7-24-1	Shut down 520 ft.
J. P. Flannigan's No. 1 Sheridan, C SW Sec. 32-22-1	Drlg. 2,780 ft.
KINGMAN COUNTY	
Skelly Oil Co.'s No. 1 Miles, NE cor. Sec. 30-27-10w	1,635-40 ft. 2,000,000 ft. gas; at 2,005-30 ft. 6,000,000 ft. gas; at 2,133-42 ft. 3,000,000 ft. gas; showing oil 3,385 ft.; T. D. 3,441 ft.; shut down; estimated at 600 bbls. a day.
LINCOLN COUNTY	
Buck et al's No. 1 Schulz, C SE NE SW Sec. 19-11-6w	Rig on ground.
MORTON COUNTY	
Hydraulic Oil Co's No. 1 State Land, NW SE Sec. 32-34-43w	T. D. 3,640 ft.; shut down.
MORRIS COUNTY	
Allender et al's No. 1 Wycoff, C SW SE Sec. 5-17-7	Shut down 105 ft.
Urschel et al's No. 1 Bersuch, NW SE NW Sec. 10-17-7	Machine.
Hankerson et al's No. 1 Cessman, SW SE Sec. 24-16-9	Shut down 2,625 ft.
NORTON COUNTY	
Richards et al's No. 1 Colby, Sec. 17-4-21w	Rig.
OSAGE COUNTY	
Briggs & Smith's No. 1 Wood, SE NW Sec. 21-14-15	Shut down 2,058 ft.
RAWLINS COUNTY	
J. G. Durham et al's No. 1 Weaver, SE cor. Sec. 3-2-35w	Shut down 3,501 ft.
RICE COUNTY	
Detrick & Langston's No. 1 Purcell, NW cor. Sec. 33-19-9w	Conglomerate 3,225-46 ft.; show oil and water; T. D. 3,375 ft.; plugging back to 3,265-80 ft.; filled 400 ft. with oil.
Cress et al's No. 1 Sharp, SE NE Sec. 13-20-10w	Show oil 3,107-15 ft.; Silicious 3,330-36 ft.; estimated 1,500 bbls.; shut in.
Allison-Fitzwilliams' No. 1 Blake, NE NW Sec. 9-18-10w	Shut down 3,311-19 ft.; show water; abnd.
RUSH COUNTY	
Dewey & Mitchell's No. 1 Greenawalt, C SW Sec. 17-19-16w	Show of oil in Conglomerate 3,835-80 ft.; plugged back to 3,825-40 ft.; showing 300 bbls.
RUSSELL COUNTY	
Agate Oil & Gas Co.'s No. 1 Rochfellow, SE cor. Sec. 6-13-12w	Shut down 3,374 ft.
Gilbreath et al's No. 1 Bratton, C NE Sec. 33-11-13w	Show oil 3,090-94 ft.; shut down 3,504 ft.; plugging back to 3,189 ft.
SEDGWICK COUNTY	
Magnolia's No. 1 McLaughlin, NW cor. Sec. 31-28-1w	Drlg. 3,500 ft.; 2,000,000 ft. gas at 2,548-64 ft.
SALINE COUNTY	
Twin Mounds Oil Co.'s No. 1 Wels, C W half NE NW Sec. 20-13-4w	Fishing 2,710 ft.
SHERIDAN COUNTY	
Flo et al's No. 1 Shoemaker, SE SW Sec. 27-7-26w	Cleaning out 2,600 ft.
STAFFORD COUNTY	
Rosenthal, Stanolind and Amerada's No. 1 Gray, C NE Sec. 11-24-13w	Shut down 2,900 ft.
STEVENS COUNTY	
Argus Prod.'s No. 2 Christopher, C NE Sec. 16-33-39w	Shut down 5,521 ft.
SUMNER COUNTY	
Tighe et al's No. 1 Thieson, C NW SE SE Sec. 22-34-2	Drlg. 2,185 ft.
Trees Oil Co. and Shell's No. 1 Springate, NE SE SW Sec. 6-34-2	Drlg. 1,532 ft.
Spencer et al's No. 1 Porter, NE SW Sec. 13-35-4w	Underreaming 3,240 ft.
Otstot et al's No. 2 Marlow, C SE NW SE Sec. 22-33-3w	Fishing 4,150 ft.
WASHINGTON COUNTY	
Sincox et al's No. 1 Penwell, NW SE NE Sec. 16-3-3	Shut down 1,720 ft.

C. D. CAMERSON DEAD

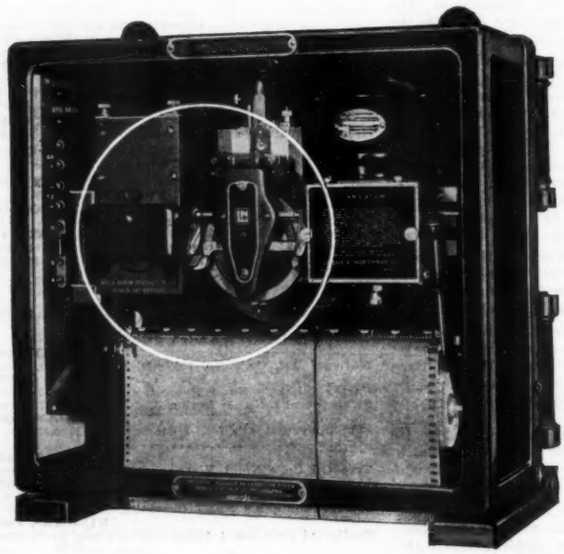
Charles D. Camerson, 45, superintendent of the Humble Pipe Line Co., Houston, Tex., was found dead in his hotel room at Longview. Death was caused by a sudden heart attack.

LEEDS & NORTHRUP COMPANY PRESENTS

MICROMAX

THE IMPROVED L & N POTENTIOMETER PYROMETER

MICROMETER SENSITIVITY, SELF-STANDARDIZATION AND HIGH-SPEED RECORDING



NOW Leeds & Northrup announces Micromax, embodying basic improvements, raising the potentiometer pyrometer to a new high level of accuracy, of reliability, and of strictly automatic operation.

Like the announcement made over twenty years ago, when Leeds & Northrup introduced the first industrial potentiometer pyrometer, today's announcement brings pyrometer users *basic* new advantages—a new order of sensitivity, speed, accuracy and reliability. In Micromax L & N again presents the pyrometer that is different from all others—the most accurate pyrometer in industry.

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THE new Micromax "scissor-action" balancing device is so microscopically sensitive that it will detect deflections of the galvanometer pointer amounting to 1/1000th of an inch. It is unaffected by wear. It requires no adjustments. It makes the recorder action responsive and speedy as no potentiometer recorder has ever been—so fast that the pen or print-wheel on a Micromax Recorder will step across the entire 9⅞ inches of calibrated chart in less than twenty-two seconds, a performance heretofore not even remotely approached.

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Micromax is the fully automatic industrial potentiometer pyrometer. It needs no daily attention; the instrument circuit in every Micromax model is now standardized automatically, at least every forty-five minutes or less, more accurately than it is done manually.

To industry in general, and in particular to the many thousands of present users of L & N Potentiometer Pyrometers, Micromax is presented as the culmination of over twenty

ESTABLISHES A NEW STANDARD OF ACCURACY AND

P-247

THE IMPROVED L & N POTENTIOMETER PYROMETER

years of specialization in industrial potentiometer pyrometers and of three years of concentrated work in the final development of its particular refinements.

THE RAPID, SUPER-SENSITIVE, "SCISSOR-ACTION" BALANCING DEVICE

REQUIRING no adjustment and not affected by wear, the Micromax "scissor-action" balancing unit responds to galvanometer pointer deflections as small as 1/1000th of an inch. Micromax banishes the variables involved in variations in adjustment of the balancing device, in mechanical clearances heretofore necessary in circuit balancing, and in progressive mechanical wear.

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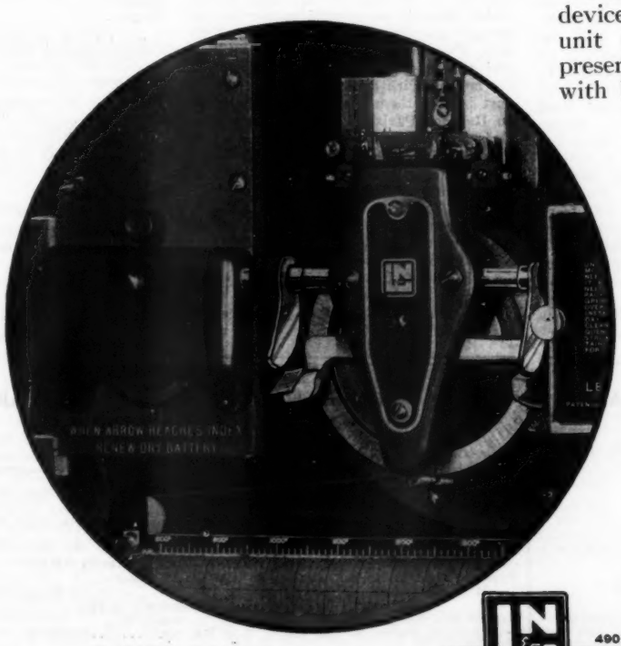
IN accord with our established policy, protection is given to the thousands of present users in that their L & N Potentiometer Pyrometers are convertible into Micromax Pyrometers.

The Micromax "scissor-action" balancing device and the automatic standardizer are unit assemblies which can be installed in present recorders in the user's own plant with little or no interruption to service.



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DEPENDABILITY IN INDUSTRIAL PYROMETERS

Zwolle Field Leading in Activity

Monroe-Richland Gas Area and Jackson Field in Mississippi Also Busy. Several Wells Now Nearing Completion

By J. R. Crumpton
Staff Correspondent, Louisiana-Arkansas

SHREVEPORT, La., Sept. 7.—A very dull week was experienced in this division as far as new production was concerned, only three completions being reported, including one good gas well in the Richland Field and two dry holes in Natchitoches Parish. To offset this increased drilling activity is noted in wildcats and several of the proven fields, particularly in the Zwolle Field of Sabine Parish, the Monroe-Richland gas area and the Jackson Field in Hinds and Rankin Counties, Mississippi. New drilling operations have been curtailed to a minimum in this division for several months, which accounts for the small number of completions at this time, but with the recent advance in prices, new production is expected to be recorded more regularly each week.

Several wells in the Monroe-Richland gas field are nearing the producing horizon where the pay comes from around the 2,450-foot level. In Ouachita Parish, Carbons Consolidated is bailing 6-inch to test at 2,092 feet on its No. 6 Guthrie, Section 49-20-4e, and the same company's No. 5 fee, Section 21-20-4e, has set 12-inch surface casing at 174 feet and 8-inch subsurface at 802 feet. In Richland Parish, the United Carbon Co. completed its No. 1 Faust Brothers Lumber Co., Section 13-17-5e, with an initial flow of 22,390,000 feet of gas from 2,430 feet. The well had a rock pressure of 850 pounds. Richland Operating Co.'s No. 1 Baremore, Section 19-16-7e, has set 6-inch at 2,290 feet and will drill plug to test. Southern Carbon Co.'s No. 1 Noe, Section 24-17-5e, is drilling at 2,045 feet and its No. 9 Rosengrant & Ducomb, Section 18-17-6e, is drilling at 2,170 feet. United Gas Public Service Co. has recently commenced three new wells in the Richland Field as follows: No. 2 Cummings, Section 24-17-5e, set 13-inch at 160 feet and 9-inch at 952 feet; No. 1-B Louisiana State, Section 32-17-6e, set 13-inch at 174 feet; and No. 1 Pipes, Section 35-17-6e, set 13-inch at 183 feet.

W. M. Coates' No. 1 Bowman-Hicks, Section 2-7-12, in the Zwolle Field, reported last week as completed, making 240 bbls. daily from 2,321 feet, was an error and the well is standing full of fluid, 50 per cent of which is salt water at the same depth. The only test in this field nearing completion depth is Lanier & Dyer's No. 1 Barthold, Section 35-8-12, which is coring at 2,200 feet. Several new operations started in the Zwolle proven area recently are: Loring Oil Co.'s No. 18 Bowman-Hicks, Section 15-7-12, and its No. 19 Bowman-Hicks, in Section 16-7-12; Pelican Natural Gas Co. is rigging up on its No. 1 Louisiana Long Leaf Lumber Co., Section 10-7-11; H. W. Perritt has set surface casing at 100 feet on his No. 5 Bowman-Hicks, in Section 2-7-12, and The Texas Company has spudded in on its No. 1 L. C. DeLatin, Section 3-7-11. In the northern part of Sabine Parish, near the Pleasant Hill Field, Langbridge Oil Co. is coring at 2,854 feet on its No. 1 Stephens, Section 17-9-11.

Three new locations were made in the Hinds County area of the Jackson Field in Mississippi. The Hilgard Gas Co. is building derrick on its No. 1 The Mississippi Co., Section 4-5n-1e, and the Jackson Oil & Gas Corp. is rigging up on No. 3 Mayes in Section 2-5n-1e. F. E. Stewart ando thers have derrick up on their No. 1 Mississippi Cotton Seed Products Co., in Section 4-5n-1e. Across Pearl River in Rankin County, there are seven active rigs as follows: J. E. Grindstaff and others' No. 1 Burford, Section 11-5n-1e, set 10-inch surface casing at 100 feet and are drilling at 840 feet; Gulf Refining Co.'s No. 1-A Hanna, Section 23-6n-1e, has drill stem stuck at 2,745 feet; Muse and Muse have taken over the well formerly listed as Harding & Flint's No. 1 Webb, Section 12-5n-1e, and are arranging to resume drilling from 880 feet; the Majestic Oil Co. has derrick up on its No. 1 Elton Lumber Co., Section 10-4n-3e; Meredith and others have spudded in on their No. 1 Allen, Section 12-5n-1e, having set 12-inch surface casing at 60 feet and are now drilling at 625 feet. Square Deal Oil & Gas Co. is nearing the completion depth on its No. 1 Spann, in Section 13-5n-1e. Six fourbles of 4-inch drill stem was sidetracked at 2,321 feet and they are now drilling at 2,325 feet. Willis and Culley are moving in rig on their No. 1 Applewhite & Holden, in Section 12-5n-1e. A wildcat in Clark County, Gulf Refining Co.'s No. 1-A Long Bell Lumber Co., in Section 10-2n-16w, is drilling in sandy shale at 2,058 feet. In Humphrey County, Danciger Oil Refining Co. has set 10-inch casing at 659 feet in its No. 1 Bellgrade Lumber Co., Section 29-14n-4w.

No results of importance developed from any of the other wildcats during the week. In Caddo Parish, W. P. Wallace, trustee's No. 2 Cunningham-O'Conner, Section 15-17-14, near Shreveport, tested dry from 2,051-71 feet after similar results from 2,047 feet. Rellitt Oil Co., in DeSoto Parish, is arranging to set tubing for a test of its No. 1 Gannon heirs, Section 12-11-16. The total depth is 1,965 feet where a good gas show was reported. The test is about 4 miles east of E. L. Chapman's No. 1 Pickering Lumber Co. in Shelby County, East Texas, which blew in as a wild gasser several months ago from a total depth of 3,864 feet. This well has finally been killed, and the operators are trying to get to the bottom with drill stem, the latest report having them reaming at 1,400 feet. In Rapides Parish, Pelican Natural Gas Co.'s No. 1 Long Bell Lumber Co., Section 3-1n-3w, is being followed closely. The latest drilling report from the test, which is on a 90,000-acre block, is drilling at 2,350 feet.

The center of interest in Arkansas continues to be Lion Oil Refining Co.'s No. 9-A Hayes, a deep test in the Smackover Field of Union County. The test, located in Section 4-16-15, near the Ouachita County line, is reaming to test in hard gray lime at 5,236 feet. Other wildcats in Arkansas follows: Dallas County, Zepp Oil Co.'s No. 2 Hillman, Section 20-10-13, drilling in hard sandy shale at 1,583 feet; Drew County, Co-Operative Development Co.'s No. 1 Hardy, Section 6-13-7, reaming to bottom in hard sand at 1,750 feet; Lincoln County, Lawrence B. Cook's No. 1 McGhee Planting Co., Section 5-8-7, arranging to lubricate stuck drill stem at 2,800 feet; Pike County, E. R. Henderson's No. 1 East, Section 13-9-23, set 10-inch surface casing at 288 feet. In Ouachita County, Copenhaven and others have spudded in on their No. 2 Berg, Section 13-15-17, and in the Urbana Field of Union County, Wilson and Chapman are drilling in red beds at 3,100 feet on their No. 1 H. Norman, in Section 3-18-13.

Daily Average Runs

There was a net increase of 735 bbls. daily in production from North Louisiana and Arkansas during the past week. Daily average runs for the several pools were:

NORTH LOUISIANA

	Bbls.
Caddo, light	6,105
Caddo, heavy	1,610
Homer	2,800
Haynesville	4,930
DeSoto and Red River	2,260
Elm Grove	335
Cotton Valley	375
Urania	3,175
Pleasant Hill	360
Sarepta-Carterville	900
Zwolle	6,500
Holly	335
Total North Louisiana	29,785
Total previous week	29,650
Increase	135

ARKANSAS

El Dorado	3,185
Smackover, light	3,200
Smackover, heavy	26,760
Stephens	600
Nevada	1,000
Lisbon	600
Champagnolle	2,195
Urbana	350
Total Arkansas	37,890
Total previous week	37,290
Increase	600
Total both states	67,675
Total previous week	66,940
Increase	735

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Rotary operations unless otherwise designated)

NORTH LOUISIANA

BIENVILLE PARISH

Company, farm and location— Remarks:
Arcadia Drlg. Co.'s No. 1 Atkins, 175 ft. W, 120 ft. N, SE cor. NW NE, Sec. 27-13-6 ..... S.D. 1,635 ft.

BOSSIER PARISH

Andrews & Davlin's No. 1 Nattin, 100 ft. N, 250 ft. W, C, Sec. 15-22-14 ..... Flowing by heads 2 blbs. 2,890 ft.; arranging to deepen.
Flint River Oil Co.'s No. 1 DeMoss, 200 ft. S and E, NW cor. SE NW, Sec. 22-22-13 ..... Bailed dry 3,046 ft.; W.O.
Dr. W. N. Hankin's No. 1 Newell, 300 ft. S and W, NE cor., Sec. 12-19-11 ..... S.D. 1,350 ft.
D. L. Perkins' No. 1 Ardis & Co., 1,127 ft. N, 198 ft. E, SW cor., Sec. 13-15-11 ..... S.D. 1,004 ft.
Rombaugh et al's No. 1 Allison, SW SE, Sec. 10-19-13 .. S.D. 1,600 ft.

CADDO PARISH

W. P. Wallace, tr.'s No. 2 Cunningham-O'Conner, 210 ft. S, 940 ft. E, NW cor., Sec. 15-17-14 ..... Tested dry 2,051 ft.; drlg. 2,075 ft.

CALDWELL PARISH

Carter Bell's No. 1 Taylor, 150 ft. S, 150 ft. E, NW cor. NE SE, Sec. 17-14-4 ..... Set 12-in. csg. 110 ft.
Hudson et al's No. 1 Burton, Sec. 35-12-2e ..... S.D. 2,950 ft.

CATAHOULA PARISH

National Drlg. Co.'s No. 1 Marsh McMiller, 70 ft. N, 100 ft. W, C, Sec. 26-9-6 ..... T.A. 3,097 ft.

CLAIBORNE—SUGAR CREEK

United Gas Public Service Co.'s No. 1 Treadwell & Hawk, 1,470 ft. S, 1,395 ft. E, NW cor., Sec. 6-19-5w. Arrng. to set 12½-in. at 1,500 ft.

DE SOTO PARISH

Keatchie O. & G. Co.'s No. 1 Hallie Smith (was H. E. Weichert's), NE SE, Sec. 31-14-15 ..... S.D. 2,350 ft.
S. S. Meek, tr.'s No. 1 Wagner, 300 ft. S and E, NW cor. SE NW, Sec. 5-12-14 ..... S.D. for fuel 2,361 ft.
Ben Merritt, tr.'s No. 1 Walluma, NE cor. SW SW, Sec. 19-13-12 ..... Set 6-in. csg. 2,530 ft.; T.D. 2,657 ft.
E. T. Oakes' No. 1 R. H. Bryant et al, 200 ft. N and W, SE cor. NE NW, Sec. 30-12-15 ..... Drlg. 2,236 ft.
Rellitt Oil Co.'s No. 1 Ganno hrs., 300 ft. S and E, NW cor. NW NE, Sec. 13-11-16 ..... Arrng. to set tubing 1,965 ft.
Walters-Nicholson, tr.'s No. 1 Jim Guy, Sec. 3-11-13 .... S.D. 1,266 ft.

(Continued on Page 67)

LOUISIANA-ARKANSAS PROVEN AREAS

NORTH LOUISIANA

CADDO PARISH—PINE ISLAND

Company, farm and location— Remarks:
J. T. McCormick's No. 1 C. B. Christian, 330 ft. S, 300 ft. W, NE cor. SW, Sec. 27-21-15 ..... S.D. 1,335 ft.
Shreveport Oil Corp.'s No. 2-B Muslow, 1,000 ft. S, 300 ft. E, NW cor., Sec. 32-21-15 ..... S.D. 2,135 ft.
Simplex Oil Co.'s No. 1 Youree-Glassell, 500 ft. N and E, C, Sec. 13-20-15 ..... Set 10-in. 150 ft; S.D.

CADDO PARISH—GREENWOOD AREA

Pyramid O. & G. Co.'s No. 2 Breard, 723 ft. S, 660 ft. E, NW cor., Sec. 10-18-16 ..... Coring 2,730 ft.

CADDO-RHODESSA AREA

United Gas Public Service Co.'s No. 1 H. J. Bussa, Sec. 33-23-16, 990 ft. W and 660 ft. S of NE cor. ..... Location.

MOREHOUSE PARISH

Bahan & Bahan's No. 4 Feazel, 900 ft. W, 300 ft. S, NE cor., Sec. 2-20-4 ..... Location.

OUACHITA PARISH

Carbon Consolidated's No. 6 Guthrie, Sec. 49-20-4e, 6,935 ft. N, 6,013 ft. W from Common Corners, Secs. 49, 26 and 25 ..... Bailing 6-in. to test 2,092 ft.
Carbon Consolidated's No. 5 fee, 1,945 ft. N, 3,046 ft. W, SE NE, Sec. 21-20-4e ..... Began Aug. 26; set 12-in. at 174 ft., 8-in. at 802 ft.
Carbon Consolidated's No. 7 Guthrie, Sec. 50-20n-4e, 5,263 ft. N, and 7,475 ft. W of corners of Secs. 25, 26 and 49, in Sec. 50 ..... Location.

RICHLAND PARISH

Southern Carbon Co.'s No. 1 J. A. Noe, Sec. 24-17-5, 3,291 ft. S, 660 ft. E, NW cor. ..... Drlg. 2,045 ft.
Southern Carbon Co.'s No. 1 Pollard, Sec. 26-16-5e, 2,710 ft. S and 563 ft. W of NE cor. ..... Location.
Southern Carbon Co.'s No. 6 Rosengraut & Ducomb, 2,640 ft. E, 1,980 ft. N, SW cor., Sec. 19-17-6 ..... Rigging up.
Southern Carbon Co.'s No. 9 Rosengraut & Ducomb, 1,320 ft. N, 660 ft. E, SW cor., Sec. 18-17-6e ..... Drlg. 2,170 ft.
United Gas Public Service Co.'s No. 2 Cummings, 3,485 ft. W, 1,320 ft. N, SE cor., Sec. 24-17-5e ..... Began Aug. 27; set 13-in. at 160 ft., 9-in. at 952 ft.
United Gas Public Service Co.'s No. 1-B La. State 2,354 ft. E, 1,922 ft. N, SW cor., Sec. 32-17-6e ..... Began Aug. 30; set 13-in. 174 ft.

(Continued on Page 67)

Gulf Coast Operators Watching Manvel

Considerable Interest in Salt Dome Discovered by Torsion Balance. Another Geophysical Prospect Proved

By Neil Williams
Staff Correspondent, Gulf Coast Fields

HOUSTON, Tex., Sept. 7. — Preparations were made over the week-end by The Texas Company to drill plug in its No. 1 Belcher, prospective wildcat producer on the Manvel geophysical salt dome prospect in northern Brazoria County. Giving promise of opening another important new field, the outcome of this test is being watched closely by all operators although the greater part of the acreage is believed to be held by The Texas Company.

This test, located 157 feet southeast of the northwest line and 223 feet northeast of the southwest line of Lot 18, Block A, Suburban Gardens Subdivision, Harvey N. Little Survey, is in sand at 5,465-83 feet with 9⅝-inch casing at 5,460 feet. In a drill stem test of the sand, the pipe filled 5,100 feet of 28 gravity oil in four minutes. Several 1,000-bbl. field tanks are being erected at the well to handle any production although the Texas Pipe Line Co.'s line from West Columbia to Houston passes only a short distance away.

The Manvel prospect, discovered by torsion balance in 1929, is approximately 20 miles south of Houston. The Belcher test is the second drilled, the first being No. 1 Ewing, 50 feet out of the northeast corner of Lot 29, same survey, which was abandoned last April at 7,648 feet. The location of No. 1 Belcher is 2,400 feet east and slightly south of No. 1 Ewing.

Another Prospect Proved

Another geophysical prospect was definitely proved up as a dome the past week when Pure Oil Co. drilled into rock salt in its No. 1 Alliance Trust Co., Gueydan, Vermillion Parish, Louisiana. This test topped salt at 6,404 feet and has drilled to a total depth of 6,458 feet. Top of what has been termed as cap rock was at 6,038 feet. This formation was not like the usual cap rock but consisted of a hard, sandy lime with some calcite and pyrites. There was no anhydrite.

This is the second test drilled on the dome. It is 2,600 feet north and 300 feet east out of the SW cor., Section 34-11s-1w. This is 2,900 feet north and 600 feet east of No. 1 Southwest Louisiana Land Co., the first test, which was abanoned in formation at 6,594 feet. A third test, No. 2 Southwest Louisiana Land Co., 3,680 feet due west of No. 1, is drilling at latest report being down 2,300 feet.

Gueydan was discovered by seismograph in 1929 by the Pure Oil Co. This company holds what is believed to be the major portion of the dome although Humble Oil & Refining Co., Magnolia Petroleum Co., Shell Petroleum Corp. and Gulf Production Co. own considerable acreage in that area. No production has been found at Gueydan although interesting showings were encountered by the Alliance test in the hard, sandy lime formation above the salt.

Barbers Hill

A good well was added on the west flank of Barbers Hill during the week with the completion of Sinclair Oil & Gas Co.'s No. 3 Smith, 50 feet out of the south corner of the tract. This well, with 220 feet of 5-inch screen set at a total depth of 5,409 feet, came in flowing 1,500 bbls. of 32.2 gravity pipe line oil daily pinched to a half-inch and an eighth-inch choke, pressure 340 pounds.

Although early in the year during the heighth of development in that area a long string of good wells were completed, more recent developments have been disappointing and with the line fight ended and the pool apparently about proved up interest there has waned. Only four rigs now remain in operation on the west side of the dome.

On the east flank of the dome, where The Texas Company recently opened a new prolific sand close up on the dome above the "Big" lime and at a total depth of only 4,509 feet, further activity is in store with the starting up of two additional tests the past week, making a total of seven new operations there as a result of The Texas Company's discovery. These new tests are Sinclair Oil & Gas Co.'s No. 8 Wilburn, 350 feet west of No. 7, a producer in the deep sand below the "Big" lime, and 48 feet from the north line of the tract, and The Texas Company's No. 2 Lawrence, 240 feet west of the east line and 41½ feet from the north and south lines of the strip. The latter is 200 feet west and up on the dome from No. 1 Lawrence, also a deep well. None of the wells started is anywhere near the pay sand as yet.

Line Fight Threatened

A line fight drilling play which may equal that which took place in the development of the deep sand below the lime beginning late in 1929 is threatened as a result of the new discovery. The new activity lies just inside the line of deep production skirting the dome and involves the same companies and properties, ownership of which is cut up into long narrow strips, necessitating numerous offsets.

Ike Laughlin and associates (Royal Oil Co.) have succeeded in completing their No. 1 Gray, north side of the Markham Field, as a fairly good producer. With gas injected into the sand, the well has been flowing better than 250 bbls. of pipe line oil daily with production showing signs of improvement. The sand, which is at 3,245-59 feet only recently was discovered by E. M. Hamill's No. 1 Meyers, a wildcat producer on the northeast flank of the dome and slightly over a half mile distant. Sand in the latter was at 3,242-63 feet. It is the deepest sand at Markham. The Laughlin well set 15 feet of 4¾-inch screen. Oil is 29.4 gravity (corrected).

The Texas Company made a small well of its No. 2 Barrow fee at Hull, Liberty County. An old well in sand at 3,866 feet, it was deepened to 4,024 feet where 458 1/6 feet of 3-inch screen was set. It came in flowing approximately 75 bbls. daily of pipe line oil.

Among abandonments of the week was Cullen & West's No. 1 Nash, Thomas Alsbury Survey No. 4, Brazoria County, and 3 miles east of the Nash Field. This test was quit as dry in shale and lime at 5,470 feet. It never got out of the Miocene. This was a wildcat prospect, the test being the first drilled in that particular area.

Resuming Operations

Gulf Production Co. is resuming operations at Orchard Dome, Fort Bend County, where development has been suspended since May. A rig already is up for No. 30 Moore, located 400 feet north and 600 feet west of No. 29 Moore in the Mark Smith Survey. No. 29, a 400-bbl. well at 4,167 feet, is the furthest west production on the south flank of the dome.

Among other new development starting up on the Gulf Coast is that of the Humble Oil & Refining Co. on what is known as its Magnolia block in southwestern Montgomery and north Harris County. Humble has a rig up for a deep test and has started drilling in its No. 1 W. A. Renn, which is 750 feet from the north line and 900 feet from the east line of the S. J. McFarland Survey, about 4 miles south of the town of Magnolia in Montgomery County.

The Magnolia district has been one of the most interesting prospective areas on the coast and has figured in leasing transactions over a period of many years. Humble Oil & Refining Co., which now holds most of the area, core drilled the block over a year ago but has never done any deep drilling. This block was obtained by Humble as a part of the Reynosa Escarpment lease play which took place some time ago.

Two new tests have been started up in the new extension district on the East Hackberry Dome where J. M. Sutton recently completed his No. 1 Erwin as a 1,200-bbl. producer in sand at 2,980-89 feet. The new tests, Calcasieu Oil Co.'s No. 3 Landry, and Yount Lee Oil Co.'s No. 43 State-Kelso Bayou, are offsets to the Sutton well, which is 1,500 to 2,000 feet to the north of other Hackberry production. Calcasieu Oil Co.'s well is 139 feet from the north line of the 11-acre tract and 300 feet east of No. 1, in Section 13-12s-10w. The Yount Lee location is 1,690 feet west and 1,320 feet north of the SE cor., Section 13-12s-10w.

GULF COAST FIELDS AND WILDCATS

Week Ended September 5
All Rotary

BARBERS HILL—CHAMBERS COUNTY

Mills Bennett Production Co.'s No. 5 Wilburn, Henry. Griffith League, 350 ft. W of No. 4 in C of lease	Drlg. lime rock 1,142 ft.
Gulf Production Co.'s No. 5 J. F. Wilburn, Henry Griffith League, 50 ft. from N line of tract and 210 ft. W of No. 1	T.D. 1,360 ft.; plugged to 1,050 ft. to straighten hole; drlg. cement.
Humphreys Corp.'s No. 6 E. H. Winfree, W. D. Smith Sur., 50 ft. from N line and 50 ft. from W line of tract	Fishing drill pipe 5,886 ft.
Humphreys Corp.'s No. 1 Ebanspacker, Henry Griffith League, 700 ft. from the N line and 70.6 ft. from the E and W lines of the tract	Drlg. sticky shale 4,469 ft.
Humphreys Corp.'s No. 8-H Kirby, Henry Griffith League, 333 ft. W of No. 6-H Kirby and 70 ft. N of S line	Drlg. cap rock 1,319 ft.
McAlbert Oil Co.'s No. 4 Wilburn, Henry Griffith League, 200 ft. W of No. 3 in C of lease, N and S	Drlg. rock 1,369 ft.
Sinclair Oil & Gas Co.'s No. 3 Smith, W. D. Smith Sur., 50 ft. out of S cor. of tract	Set 220 ft. 5-in. screen 5,409 ft.; comp. flowing 1,500 bbls. pipe line oil, 32.2 gravity, 340 lbs. pressure, through ⅛ and ⅛-in. chokes.
Sinclair Oil & Gas Co.'s No. 8 Wilburn, Henry Griffith League, 350 ft. W of No. 7 and 48 ft. from N line of tract	Rig.
Sun Oil Co.'s No. 1 Anna Higgins, Wm. Bloodgood Sur., 230 ft. from E line and 31 ft. from S line 10-acre tract	Coring sandy shale showing oil 5,294 ft.
Sun Oil Co.'s No. 2 Winfree, W. D. Smith Sur., 50 ft. E of SW line and 150 ft. N of S line of tract	Drlg. rock 3,787 ft.
The Texas Company's No. 2 Winfree, west flank, W. D. Smith Sur., 264 ft. N, 50 ft. W at right angles out of SE cor. of lease	Fishing cones 5,743 ft.
The Texas Company's No. 7 Wilburn, Henry Griffith League, 116 ft. S of Humphreys Corp.'s No. 8-H Kirby	Drlg. sand 150 ft.
The Texas Company's No. 2 Lawrence, Henry Griffith League, 240 ft. from E line and 41½ ft. from N and S lines of strip	Rig.

HUMBLE—HARRIS COUNTY

Southern Coastal Oil Co.'s No. 3 Perkins, John Jones Sur., 150 ft. N of No. 2	Derrick.

PORT NECHES—ORANGE COUNTY

The Texas Company's No. 1 Polk-Kuhn-Glass, 260 ft. E and 1,545 ft. S of SW cor. Marshall Beaucham Sur., in the T. J. Notgrass Sur.	Drlg. hard sand 1,039 ft.
The Texas Company's No. 3 Kuhn, 587 ft. S and 150 ft. W of NE cor. of the Mary E. Hall Sur. No. 2	Location.

MARKHAM—MATAGORDA COUNTY

Ike Laughlin et al's No. 1 W. H. Gray, 400 ft. from S line, 150 ft. E line, Blk. 2, Wm. Hadden Sur.	Oil sand 3,245-59 ft.; set 15 ft. 4¾-in. screen; comp. flowing 250 bbls. daily, 29.4 gravity (corrected).

HIGH ISLAND—GALVESTON COUNTY

Yount Lee Oil Co.'s No. 30 Cade, N. Fitzsimmons Sur., 161 ft. W of No. 15 and 146 ft. SW of No. 17	Drlg. 100 ft.
Yount Lee Oil Co.'s No. 22 Cade, N. Fitzsimmons Sur., 125 ft. S of No. 21	Drlg. anhydrite 3,102 ft.; top anhydrite 3,000 ft.

HULL—LIBERTY COUNTY

The Texas Company's No. 2 Barrow (W.O.), Jesse Devore Sur., 276 ft. W and 50 ft. S of NE cor. Barrow tract	Set 458 1/6 ft. 3-in. screen 4,024 ft.; comp. flowing 71 bbls. daily.

DAMON MOUND—BRAZORIA COUNTY

Layne et al's No. 8 Wisdom, 155 ft. from NW line and 150 ft. from NE line, Lot 52, Blk. D, Wisdom Subd., A. Darst Sur.	No report.

ORCHARD—FORT BEND COUNTY

Gulf Production Co.'s No. 30 Moore, Mark Smith Sur., 400 ft. N and 600 ft. W of No. 29	Rig.

ORANGE—ORANGE COUNTY

Jefferson Prod. Co.'s No. 1 Bland	Sandy shale 2,980 ft; drill stem stuck.

LOCKWOOD—FORT BEND PARISH

Cullen & West and Gulf Prod. Co.'s No. 2-A Lockwood & Sharp, J. Rabb Sur., 600 ft. N 20° W of No. 1-A	Set 90 ft. 4½-in. screen 3,179 ft.; comp. flowing 175 bbls. oil, estimated 8,000,000 ft. gas, 650 lbs., through 1-in. choke.
Cullen & West and Gulf Prod. Co.'s No. 3-A Lockwood & Sharp, J. Rabb Sur., 600 ft. E of No. 2-A	Spudded.

(Continued on Page 69)

Greater Activity in Southwest Texas

Recent Discoveries Stimulate Drilling. Darst Creek Well Gauges 6,072 Bbls. Watching Stanolind Test

By B. D. Stevenson
Staff Correspondent, Southwest Texas Fields

SAN ANTONIO, Tex., Sept. 7.—Stanolind Oil & Gas Co.'s No. 1 Stratton, in the southwestern part of Nueces County, 7 miles south of the Agua Dulce Field, was expected to be brought in some time this week. It was previously reported as showing for a gas well on drill stem test. Casing has since been set and the casing anchored with a cement block. This test and the new pool opened in Guadalupe County southwest of the Darst Creek Field by John F. Camp's No. 1 Sue Denman and the new sand found in the Saxet Field by the Gulf Coast Oil Co.'s No. 1 Harrell constitute the leading features of the week in Southwest Texas.

Stanolind Oil & Gas Co.'s No. 1 Stratton is a pure wildcat and looks like the opening of a new gas pool. The gas was wet and there is the possibility of oil. It was first listed as the Southern Crude Oil Purchasing Co.'s No. 1 Stratton but since the consolidation of that company and the Dixie Oil Co. the name has been changed. The well is located about 1 mile from the south and west lines of Nueces County and the Agua Dulce Field 7 miles north is the nearest production. Location is 1,650 feet from the east line and 330 feet from the south line of Section 12 of the Paso Ancho de Abijo Survey. The contract depth was originally 3,500 feet but it was later deepened with the idea of going at least 5,000 feet. At 4,746-52 feet it had a sand that tested 200 pounds in three minutes on drill stem test. A line through this well and the Agua Dulce Field would be about parallel with the coast and about parallel with a line of fields from the Saxet Field on the south end and the Victoria County, McFadden Field, on the north end.

The coast area within 50 to 75 miles of Corpus Christi is already sprinkled with producing spots where one discovery well has been completed but no further development has followed.

New Sand in Saxet Field

In the Saxet Field the Gulf Coast Oil Co.'s No. 1 Harrell has been brought in from a new sand at 4,553 feet and it made an initial production of about 75 bbls. of oil but plenty of gas. It was somewhat disappointing as more had been expected of it. It is really a big gas well making a small amount of oil. The company is experimenting with it and a half-inch choke in the bottom of the hole is being tried with the idea that it will hold the gas back and increase the volume of oil production.

The well was first completed at 4,095 feet for about 150 bbls. initial production but was later killed and deepened to 5,225 feet and then plugged back to 4,553 feet. It is in about the center of the north edge of the field and is the deepest producer in the field, the next shallowest being the two wells of the Saxet Oil Co. on the Dunn lease which are producing oil and gas at about 4,300 feet and the next shallower is the sand at around 4,075-97 feet of which there are several wells.

Activity is picking up in the Saxet area and in adition to the new tests of the Saxet Oil Co. on the McCampbell lease and the No. 1 Roark by Neal-Milton & Kepley and the No. 1 Elder by the Gulf Coast Oil Co. the latter company is making location for its No. 1 Sagarin. The Neal-Milton & Kepley No. 1 Roark has been making good time and is already down below 2,600 feet and Gulf Coast Oil Co.'s No. 1 Elder is below 2,300 feet.

Another coast well that should be in soon is the Welder Oil Corp.'s No. 2 Welder in northern San Patricio County. 15 miles north of the White Point Field. In sand at 3,648-54 feet it tested 1,000 pounds of gas in four minutes and has started coring a little deeper to get the thickness of the sand. It promises to be the first producer completed since the discovery of the field by the completion of the Aransas Oil Corp.'s No. 1 Welder some months ago at 3,634 feet. The new test is not far from the discovery well. Welder Oil Corp.'s No. 1 Welder, 1,500 feet from the discovery well was dry.

Camp Opens New Field

Proration Umpire W. P. Laughter, of the Darst Creek Field, gauged John F. Camp's No. 1 Sue Denman, completion of which was reported last week, and it gauged at the rate of 6,072 bbls. per day through a 2-inch gate valve with the valve half closed. The allowable production of the well is fixed at 924 bbls. While gauged and prorated as part of the Darst Creek Field, the well really probably opens a new pool though production may extend close to the old pool. Humble Oil & Refining Co. has made location for its No. 1 Sue Denman 300 feet east of Camp's No. 1 Sue Denman, a direct offset.

Gravity of the oil in the Camp test is different from that in the old field being 32.5 which is about 4 degrees lower than in the Darst Creek Field. The gas is sweet and that in the field was sulphur and the pressure of 200 pounds on the Camp well was higher than in the old field. A fault displacement of several hundred feet at point of greatest displacement the Darst Creek Field tapered off to less than 100 feet at the southwest end and the last producer at the south end, the Sun Oil Co.'s No. 1 Dowdy, is a small well. The Camp well is about 24 feet higher on the Edwards lime than in the Darst Creek Field.

Quite a number are of the opinion that the Camp well opens a new pool and they would not be surprised to see the line of production picked up and extended across the Guadalupe River to the southwest. Of course there are others who believe it is all a part of the Darst Creek Field.

At least it encourages those who have held to the idea that not all of the Edwards lime production has been found yet and will encourage further wildcatting along the fault zone and especially in the southern part of Guadalupe County. W. J. Walton's No. 1 Zobrolski, a few miles on farther southwest is still flowing about 8 bbls. of oil a day with the hole bottomed in the Austin chalk.

John F. Camp secured 100 acres out of the Denman tract from the Humble Oil & Refining Co. Considerable of the formation normally between the Taylor marl and Ewards lime was missing in this test indicating it had cut the fault.

Of the tests in the Balcones fault zone that will get particular attention, outside of the drilling that will be carried on around the Camp well, Ralph R. Lewis' No. 1 Keith McGee probably occupies the center of attention. After shutting down for a time after spudding in it has resumed drilling. It is in the James Pinchback Survey between the Dale Field

(Continued on Page 73)

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

ATASCOSA COUNTY

Company, farm and location— Remarks:

Tom Draper's No. 1 Trueblood, 250 ft. from N line, 1,440 ft. from W line of tract, John Neill Sur.....T. D. 650 ft.; shut down.
Glen Mathis' No. 2 Mrs. C. Martin, 100 ft. SE of No. 1..T. D. 2,500 ft.; shut down.

BLANCO COUNTY

Hardy-Sitton's No. 1 McMillan .....T. D. 600 ft.; fishing.
Theo. Hicks' No. 1 Specht, 1,500 ft. from S line, 500 ft. from W line of farm in Thomas M. Fowler Sur. No. 27 in extreme south point of county.....T. D. 400 ft.; previous depth reported in error.
Liles-Adams et al's No. 1 Stanford, 150 ft. to S line, 1,420 ft. to E line of James Stanford's No. 165.....T. D. 1,100 ft.; drlg.
McCleary et al's No. 1 Schenling, 900 ft. to SE line, 600 ft. to S line of J. A. Rouse No. 118 Sur., 4 miles SW from Blanco City.....T. D. 574 ft.; shut down.
C. Rosenfield's No. 1 Hohenberger, 800 ft. to W line, 1,260 ft. to N line, Sur. No. 94.....T. D. 712 ft.; shut down.

BASTROP COUNTY

W. A. Allen's No. 1 Birmingham, James Stewart Sur.....T. D. 1,200 ft.; drlg.
Smith & Barnes' No. 1 Marberger, 50 ft. W line, 1,360 ft. S line of tract in King & Millett Sur.....T. D. 570 ft.; shut down.
Texas Dev. Co.'s No. 1 C. H. Ray, 800 ft. from W line and 400 ft. from S line of farm in Thos. Christian Sur. .....Derrick.

BELL COUNTY

Mildon Oil Co.'s No. 1 J. K. Edds, Maxiano Moreno Sur...T. D. 906 ft.; abnd.
Fields & Lange's No. 1 C. S. White, 150 ft. from S line, 300 ft. to E line of farm in Nancy Roberts Sur.....T. D. 297 ft.; drlg.
Hartman Drilling Co.'s No. 1 E. L. Denver, 600 ft. to N and 300 ft. to E line of farm, in Nancy Roberts Sur..T. D. 482 ft.; shut down.
J. W. Riley's No. 1 W. S. Chaffin, in M. Griffin Sur.....Spudded in.
James Scroggins' No. 1 Warrick, Ingram Sur.....T. D. 1,425 ft.; fishing.
Vilas Oil Co.'s No. 1 B. F. Whittington, 9 miles E of Holland .....T. D. 1,298 ft.; temporarily abnd.

BEE COUNTY

Alexander et al's No. 1 McFall, 3 miles S Skidmore.....T. D. 1,870 ft.; drlg.
Hughes et al's No. 1 Martin, 1,000 ft. S of Simms Oil Co.'s No. 1 Holzmark in John Lyford Sur.....Moving in rig.
Humble Oil & Refining Co.'s No. 1 Thompson Branch, S part of county.....Building derrick.
Mauldin et al's No. 1 Kimball, 300 ft. S Grayburg's No. 1-A Kimball, S. Winship Sur.....T. D. 3,544 ft.; standing.

BEXAR COUNTY

J. E. Anderson's No. 1 Suburban Irrigated Farms, 500 ft. to N line, 600 ft. to E line.....T. D. 530 ft.; shut down.
Ingersoll-Miller's No. 2 Carruth, 3,900 ft. S, 2,500 ft. W of NE cor. of tract in Francisco Bolen Sur.....T. D. 700 ft.; set csg.
Schneider, Rees et al's No. 2 Claussen, 12 miles NE of San Antonio .....T. D. 865 ft.; standing.

CALDWELL COUNTY

Ralph R. Lewis' No. 1 Keith McGee, 600 ft. from E and S lines of tract in J. Pinchback Sur.....Set surface csg.
Mills et al's No. 1 McMahon, 275 ft. SW line, 75 ft. SE line of tract, J. Pinchback Sur.....T. D. 2,502 ft.; standing.

(Continued on Page 70)

SOUTHWEST TEXAS PROVEN AREAS

COOKSEY POOL—BEXAR COUNTY

Company, farm and location— Remarks:

Witherspoon Oil Co.'s No. 1 Knapick, 412 ft. W of CEL in J. W. Riall Sur. .....T. D. 2,214 ft.; abnd.; fresh water in Edwards.

DOBROWOLSKI POOL—BEXAR COUNTY

W. S. Rogers et al's No. 1 L. Donnop, Juan Montez Sur. .....T. D. 612 ft.; shut down.

BRUNER POOL—CALDWELL COUNTY

Joe Bruner's No. 1 Malone, 150 ft. to N line, 750 ft. to W line of tract, A. Floyd Sur..... T. D. 2,572 ft.; set csg.; standing.

CHAPMAN POOL—WILLIAMSON COUNTY

Westbrook Oil Corp.'s No. 8-A Lawrence, 150 ft. from S and E lines of tract in S. Miller Sur. .....Location.

PETTUS POOL—BEE COUNTY

J. L. Mauldin's No. 1 fee, 1,300 ft. N of S line, 150 ft. E of Medio Creek, Kerr County .....T. D. 3,930 ft.; standing.
Geo. N. Moore et al's No. 2 Freeland, in John Pace Sur., 1,000 ft. from S line, 600 ft. from E line of survey ....T. D. 4,297 ft.; standing.
United Prod. Co.'s No. 39 Ray, 1,130 ft. to SE line, 2,396 ft. to SW line of T. Hanson Sur. .....T. D. 4,420 ft.; drlg.
T. B. Slick, estate's No. 1 Ray, in Kerr Sur., 330 ft. E of most easterly W line, 150 ft. N of S line of survey .....Location.

CARTWRIGHT POOL—LIVE OAK COUNTY

Houston Oil Co.'s No. 14 Cartwright, 1,000 ft. W of No. 23 Cartwright .....T. D. 5,400 ft.; standing.

CHITTIM POOL—MAVERICK COUNTY

Texas Gas Utilities' No. 8 Chittim, 24 ft. S of No. 7 Chittim .....T. D. 4,800 ft.; fishing.

SAXET FIELD—NUECES COUNTY

Gulf Coast Oil Co.'s No. 1 Sagarin.....Building derrick.
Gulf Coast Oil Co.'s No. 1 Maggie Harrall, 330 ft. from S and W lines of Blk. 32, Sec. 311 .....T. D. 4,553 ft.; complete; 75 bbls. oil and heavy gas pressure.
Gulf Coast Oil Co.'s No. 1 Elder, NW of same company's No. 1 Harrell .....T. D. 1,911 ft.; drlg.
Neal-Milton and Kepley Pet. Co.'s No. 1 J. N. Roark, 200 ft. to S line, 200 ft. to E line of 106-ac. tract ....Drlg. 2,408 ft.
Saxet Oil Co.'s No. 1 McCampbell, 600 ft. from N and W lines of tract .....Rigging up.

LAREDO DISTRICT

KOHLER POOL—DUVAL COUNTY

Humble Oil & Refining Co.'s No. 50 Kohler, 2,805 ft. from S line, 165 ft. from W line of Sur. 164 .....T. D. 7,632 ft.; drlg.

CAROLINA-TEXAS POOL—WEBB COUNTY

George S. Marshall's No. 1 Benavides, 660 ft. from S line, 150 ft. from E line of Sur. 682 .....Location.

SCHOOLFIELD-O'BYRNE POOL—DUVAL COUNTY

Duval Oil Corp.'s No. 3 Bishop Land Co., 330 ft. from N line, 1,650 ft. from W line of Sur. 135 .....T. D. 2,346 ft.; complete; flowing by heads 75 bbls. daily.

KILLAM-CUELLAR FIELD—ZAPATA COUNTY

O. W. Killam's No. 43-B Cuellar, 490 ft. from S line, 243 ft. from SW line of Sur. No. 277.....T. D. 1,560 ft.; complete 100 bbls.
O. W. Killam's No. 44-B Cuellar, in Sur. 277.....T. D. 400 ft.; drlg.

Testing Western Hobbs Wells for Water

Has Appeared in Four Outside Producers. Three Wells Drilling and Seven Starting in Northeastern Colorado Section

By Tolbert R. Ingram
Staff Correspondent, Rocky Mountain Area

DENVER, Colo., Sept. 7.—Members of the Hobbs Pool proration committee have urged Governor Seligman of New Mexico to adopt a watchful waiting policy to see what happens in East Texas before taking any definite action in regard to the price of Hobbs crude. Tests of wells on the western edge of the Hobbs Pool are being made to determine the extent of water intrusion which has appeared in four outside producers. The Harlan Ranch test in Valencia County was abandoned and one well in San Juan County is showing for a small producer.

Northeastern Colorado is developing an extensive drilling campaign with three wells drilling, seven wells starting and two others assured in the Greasewood district alone. Reiter-Foster's No. 1 Ida Johnson averaged 528 bbls. daily on a six-day gauge before being tubed and is expected to do better when completed. The Ohio Oil Co. has made two locations in the district.

The productive area of the Madison lime on the Garland Dome in Wyoming has been extended a mile to the northwest in the Utah Southern Oil Co.'s test which gauged 1,500 bbls. of oil and 25,000,000 feet of gas. The Continental Oil Co. completed a 250-bbl. Lakota sand well in the Big Muddy; two wells were completed in the Osage Field, and the Producers & Refiners Corp. is abandoning its deep test on the Muskrat Dome.

A small gas well was completed in the Border Field in Montana and an edge well in the Cut Bank gas field gauged only 1,000,000 feet. One new operation was reported in Fergus County.

NEW MEXICO

Members of the executive committee in charge of proration in the Hobbs Pool, representing the major operators, have urged Gov. Arthur Seligman to adopt a watchful waiting policy in regard to the price situation in that pool to see what happens in the East Texas Field. This action was taken in the form of telegrams sent to the governor so he might know the sentiment of the committee. The opinion was expressed that effective measures to bring East Texas under control will benefit Hobbs prices, whereas a shutdown at Hobbs might cause the New Mexico crude to lose its market. The present price of Hobbs crude is 35 cents, a recent advance of 10 cents, and Governor Seligman is quoted as saying it should be 52 cents to keep the field in line with East Texas prices. The governor is quoted as saying he has been told if he orders the Hobbs wells shut down the operators are willing to abide by the order without calling out the national guard. The New Mexico Oil Men's Protective Association, represented by W. A. Nicholas, president, wired the governor expressing the appreciation of the members of his efforts to help the situation and commended him for his decision to use persuasion instead of force. It was pointed out, however, that if New Mexico markets were lost by closing down, they might be difficult to recover.

Water Intrusion

The appearance of water in some of the producers on the extreme western and southwestern edges of the Hobbs Pool has caused the making of some pressure bomb tests to determine the extent of the intrusion. The situation at this time does not appear to be serious and is believed to have resulted from drilling too deep into the lime. Only four wells have been reported so far as making water and these are on the extreme edge of the structure. No water has been reported in any of the wells on top. Those showing the intrusion are about 100 feet down structure.

The Humble Oil & Refining Co.'s No. 3-A State, C NW SE, Section 25-18-37, the farthest west of any of the producers, was reported in July to be making about 65 per cent water. This well was completed at a total depth of 4,220 feet and was given a potential of 2,786 bbls. in December, 1930. The Amerada Petroleum Corp.'s No. 1-C State, NE cor., Section 36-18-37, about on the same contour as the Humble well, was reported making 23 per cent water. Its total depth is 4,236 feet and was a small well at the time of completion, being given a rating of 130 bbls. daily. The Landreth Production Co.'s No. 1-C State, NE cor. NW, Section 6-19-38, which is on a slightly lower contour than the two wells just mentioned, was reported making 7½ per cent water. Its total depth is 4,221 feet and it was given a potential of 388 bbls. when completed last January. The other well showing water is the Midwest Refining Co.'s No. 11 State, C NE SW, Section 5-19-38, which had been making as high as 80 per cent water before it was plugged back recently to shut it off. It was originally completed at a total depth of 4,193 feet and was given a potential of 5,022 bbls.

It is believed the trouble arises principally from the wells having been carried a little too deep into the lime. The average depth to the top of the white lime in the field is 4,050 feet and the average total depth of all wells is approximately 4,190 feet, making an average of 140 feet of lime drilled. A comparison of the records of the wells indicate the best production has been obtained in the upper part of the lime and deeper drilling has not yielded any material increase. This is illustrated by the Humble's No. 1-A Bowers, NE cor. SE, Section 30-18-38, the first well completed in the big production area. It was completed in January, 1930, at a total depth of 4,106 feet and made 7,476 bbls. the first 24 hours. It was connected with the pipe line and put on production in May and then went on proration when the agreement went into effect in July. Last fall it was drilled deeper to 4,215 feet and instead of showing an increase, it was given a potential of 7,248 bbls., or less than the initial production before being deepened. Several wells in the big production area showed a higher potential at a lesser depth into the lime than some offsets which went deeper. Engineers for the operators are keeping a close watch on the developments to prevent any serious situation arising.

Lea County

Western Drilling Co.'s No. 1 State, SE NE NE, Section 16-20-32, northwest of the Lea Pool, is drilling at 3,990 feet in lime and has 3,200 feet of water in the hole. First sulphur water was at 2,745 feet. Culberson & Conrad's No. 1 State, C NE, Section 22-18-34, Caprock area, is shut down at 3,500 feet in anhydrite and lime waiting for 6⅝-inch casing. It has 2,100 feet of water in the hole from 3,360-75 feet. Top of the brown lime was encountered at 3,420 feet.

De Baca County

Matador Oil Co.'s No. 1 Wood, NE SW SW, Section 6-4n-20, Salada Creek, is shut down for orders at a total depth of 3,200 feet in granite wash.

Eddy County

Oil Well Drilling Co.'s No. 1 Baker, SE NE NE, Section 21-21-26, Carlsbad area, is shut down for orders at 1,155 feet. Flynn, Welch & Yates' No. 60 State, SW cor., Section 5-19-28, Artesia district, is drilling at 1,680 feet in anhydrite.

San Miguel County

Star Oil Co., Ltd.'s No. 3 Adams, NE cor., Section 25-17-17, Dunken district, which was shut down at 4,775 feet to run the 5 5/16-inch pipe when a show of gas was encountered, has cemented off the bottom to protect the sand from water while waiting for the pipe to arrive to make a shutoff. The gas was estimated at 500,000 feet and below the water there also was a small show of oil.

Santa Fe County

Meyers-Owsley Drilling Co.'s No. 1 Cantwell, NW cor., Section 5-10-9e, near Stanley, is drilling at 235 feet in the red beds. This is being drilled with cable tools under a contract that calls for a 2,500-foot test.

Guadalupe County

New Mexico Producing & Refining Co., Ltd.'s No. 1 McMillan, SW cor., Section 24-5n-16, Mesa Leon district, is drilling at 2,010 feet in sand after lowering the 12½-inch from 1,820 to 1,847 feet.

Valencia County

Thomas B. Harlan and others' No. 5 Harlan Ranch, S half, Section 5-6-2e, De Chavez district, was dry and abandoned at a total depth of 4,018 feet. It was half a mile southeast of two other tests drilled.

San Juan County

Reserve Oil Co.'s No. 3, NW SE SE, Section 36-22-14, Stoney Butte, is bottomed at 819 feet in sand with several hundred feet of oil in the hole. It is estimated good for 50 bbls. It is only a few feet from a well drilled several years ago by the Midwest Refining Co. which showed for 30 bbls. at 840-70 feet in the Mesa Verde. It was drilled down and found water in the Hospah sand. Kutz Canon Oil & Gas Co.'s No. 1 Day, SW cor., Section 20-28-10, Kutz Canon district, is bottomed at 3,615 feet and waiting for casing to run before going deeper. It is supposed to be in or close to the top of the Mesa Verde and has a show of oil. The 6¾-inch was cemented at 2,012 feet where it had a show of gas in the Picture Cliff.

Torrance County

Estancia Valley Carbon Dioxide Development Co.'s No. 2 De Hart, SE SE, Section 12-7n-7e, is drilling at 40 feet. It is near No. 1 De Hart which had a small flow of carbon monoxide gas at around 1,300 feet.

COLORADO

Greasewood District

An extensive drilling campaign in the Greasewood district in Weld and Morgan Counties in northeastern Colorado is now a certainty as a result of the bringing in of Reiter-Foster Oil Co.'s No. 1 Ida Johnson, C NE NW, Section 24-6n-61, on the Weld County side, a joint operation with the Platte Valley Petroleum Co. In addition to three wells now drilling, seven wells are being started and one or two more are definitely scheduled for immediate drilling.

The Reiter-Foster well has not yet demonstrated fully what it will do as it is standing just as it was finished waiting for the erection of tankage before tubing is run and back pressure is applied. In the meantime it is flowing by heads. Gauges for the past week for 24-hour periods ending at 7 a.m. are as follows:

	Bbls.
Aug. 27	687
Aug. 28	630
Aug. 29	535
Aug. 30	495
Aug. 31	405
Sept. 1	414

The total depth of the well is 6,652 feet, 10 feet in the first sand of the Dakota series. Some geologists identify the sand as the Muddy, the producing horizon at Fort Collins, and others name it the Dakota. A definite identification is not likely until some of the drilling wells go through this horizon and test the underlying sands. President Paul Ache of the Reiter-Foster company favors the deepening of No. 1 Ida Johnson for such a test, while others are urging that it be allowed to stand. There is a fear of running into water, due to the bottom of the hole showing a temperature of 215° F. President Ache points out, however, that the oil comes from the casing at a temperature of only 50°. It will be recalled that the Rollestone well near Longmont, the deepest hole ever drilled in Colorado, showed an equally high temperature at the lowest depth to which the instrument could be lowered with safety, but did not run into water. It is probable one of the two wells being drilled by the Continental Oil Co. will be put down to the deeper sands, but which one will depend upon results when the first pay is reached. The opinion is generally held that the Reiter-Foster well, and also No. 1 Patterson, the discovery well, 990 feet to the south, are near the edge of the structure, but which edge is a matter of dispute. One group of geologists believe they are on the northwestern edge, while another group places them on the southeastern edge.

Three gauges of the gas pressure in the Reiter-Foster well were made. One of these showed a flow equal to 5,000,000 feet a day. The second test gauged 6,000,000 feet, and the third, which was taken just before the well headed, indicated a flow of 15,000,000 feet. It is thought probable the bottom of the hole is just in the top of a gas horizon and that the gas is channeling its way up through 6,000 feet of oil. The manner in which the well sprays oil when the head begins points to this supposition being correct.

Seven of the ten 500-bbl. tanks being erected are in place and 3-inch tubing is being run into the well. Some experimenting will be done to determine the best place to land the tubing. The well is flowing into a tank 2,000 feet away and elevated 41 feet above the derrick floor. This is quite a lift for the oil after coming more than 6,000 feet from the sand.

Platte Valley Petroleum Co.'s No. 1 Patterson, NE SE NW, Section 24-6n-61, the discovery well which came in last October, has dropped in production since the Reiter-Foster well came in. It made 350 bbls. daily with almost no variation until recently. On August 31, a few days after No. 1 Ida Johnson came in, it gauged 144 bbls. in 24 hours, flowing by heads. On September 1 the gauge showed 124 bbls. There is no water in either well. The discovery well has 70 feet of open hole and it is possible that the gas channeling its way into the other well has relieved the pressure and caused the discovery to sand up or cave.

Three wells are drilling. Continental Oil Co.'s No. 1 Briggs, C SE SW, Section 13-6n-61, an offset on the north to No. 1 Ida Johnson, is standing with the 9⅝-inch cemented at 5,506 feet. Twenty-six tons of ice was used in chilling the water used in circulating when the cement was poured and the job apparently was a success, though the water has not yet been bailed down for a test. Continental's No. 1 Gadbois, C SE SW, Section 24-6n-61, half a mile to the south of the discovery, is drilling at 3,990 feet. Reiter-Foster Oil Co.'s No. 1 Johnson-Juhl, C SE SE, Section 14-6n-61, half a mile to the west of Continental's No. 1 Briggs, is drilling below 3,100 feet.

The Ohio Oil Co. this week made two

(Continued on Page 81)

California Outlook Is More Favorable

Production Curve Relatively Flat for Next 10 Days. Gas Conservation Program. Sharkey Bill May Be Voted on at Special Election

By L. P. Stockman
Staff Correspondent, California Fields

LOS ANGELES, Calif., Sept. 5.—Crude oil production in California did not show any great change during the week and it appears likely the production curve will remain relatively flat at least for another 10 days. There is comparatively little drilling in California so there will not be any large number of completions. Kettleman Hills appears to be the only field which might cause any temporary fluctuation but operators in that area are making a determined effort to stabilize production and new completions are not expected to exert any great unfavorable effect at least for the present. It should be remembered that wells in the north dome at Kettleman Hills register exceptionally prolific production with the result that one new well temporarily upsets the equilibrium. There are a few wells being deepened to the lower zone at Long Beach and a few more in the Domingues, Santa Fe Springs and Ventura Avenue Fields, but most of this work is due to lease requirements and will have limited effect on state production.

The outlook is decidedly favorable although the present equilibrium could be violently disturbed within a short time by additional drilling or any relaxation in curtailment work. The situation looks unusually bright if producers will conscientiously observe curtailment work and strictly adhere to allowable production prescribed by Umpire Neal Anderson. One is not justified in assuming any increase is imminent in crude price schedules although it is believed existing prices will at least be maintained. Future prices are entirely in the hands of producers as the present is one of the rare occasions when producers of crude oil can write their own ticket, although even a small minority can thwart the concerted efforts of the constructive majority.

The operators general committee on state-wide curtailment, after a minute survey, reduced California's potential daily production 18,600 bbls., bringing the new potential down from 1,187,600 bbls. to 1,169,000 bbls. This reduction was effected by reducing the potential of the Long Beach, Playa Del Rey, Seal Beach, Elwood and Ventura Avenue Fields. A part of this decline was offset by an increase of 14,000 bbls. in the daily potential of Kettleman Hills, increased from 210,000 bbls. to 224,000 bbls. Belridge and Midway-Sunset were increased slightly. There was no change in the daily allotment of the State, which remained at 487,500 bbls. per day.

Gas Conservation

In addition to curtailing production of oil, California operators have made a determined effort to minimize the waste of natural gas. Production of natural gas at present is lower than at any time for several years, due principally to the killing of two wells by the Kettleman North Dome Association and one by the Standard Oil Co. in the north dome. The Standard still has two big gas wells producing in the north dome at Kettleman Hills but one or both of these, No. 8-1P and No. 81-11P, may be taken off production in the near future as they are producing 72,500,000 feet and 76,500,000 feet per day, respectively. The gas zone in the Buena Vista Hills in the Midway-Sunset Field of Kern County is being utilized as a natural reservoir for the storage of surplus natural gas and it is probable an additional substantial quantity will be injected next year. It is likely the gas storage program will be temporarily discontinued during the winter months due to the seasonal increase in gas consumption and some of the injected gas may be withdrawn.

Ground Storage

Since January 1, the Southern California Gas Co. has injected approximately 1,500,000,000 feet of natural gas into the Buena Vista reserve. The gas used for injection was surplus production of the Standard and Kettleman North Dome Association resulting from development work in the north dome. During August approximately 600,000,000 feet of natural gas was transported from Kettleman Hills to Buena Vista by the Southern California Gas Co. and injected in the latter area. Storage of natural gas in the Buena Vista gas zone constitutes a reserve in the event that gas production of Kettleman Hills drops below daily requirements to meet the winter demand. Approximately 400,000,000 feet of natural gas per day will be needed to fill California's winter demand, 150,000,000 feet being required in the northern part of the State and 250,000,000 feet in southern California.

Production of natural gas at Kettleman Hills is expected to average about 200,000,000 feet per day during the winter. This is about 50,000,000 feet per day in excess of the anticipated demand in northern California and this surplus will therefore be available in southern California. This 50,000,000 feet of natural gas coming south from Kettleman Hills will be augmented by 70,000,000 feet available in Los Angeles Basin fields and 130,000,000 feet per day from Ventura Avenue and other coastal fields, including the gas field on the More Ranch in Santa Barbara County. Present pipe line capacity from the San Joaquin Basin is 70,000,000 feet daily but the new gas line of the Southern Fuel Co. now under construction will provide transportation facilities for an additional 130,000,000 feet per day upon completion November 1, 1931. This new line is being built because of declining production of natural gas in Los Angeles Basin fields and also because of the probability that eventually natural gas lines will be extended southward to San Diego, the only large city in California not served with natural fuel.

New Casing Record

The North American Consolidated established a new casing record early this week when it landed 8,483 feet of 9⅝-inch pipe. This is the longest string of 9⅝-inch casing ever run in any drilling project in California and is also believed to constitute a world's record for casing of this diameter. Several longer strings have been landed in California wells but in each instance the diameter of the pipe was smaller than the 9⅝-inch used by the North American. The Shell Oil Co. landed and cemented 8,700 feet of 5⅝-inch casing in its No. 1 Williams, a wildcat recently abandoned in the Semitropic Ridge area of Kern County, and several other similar records have been established heretofore. The North American also holds the existing record for 13⅜-inch pipe when it landed 6,763 feet in No. 1 Blauvelt at Kettleman Hills, the same well in which it has just established the new record for 9⅝-inch casing. No difficulty was experienced in landing and cementing the 13⅜-inch casing but the company encountered some trouble with the 9⅝-inch job. Due to the inability to secure satisfactory circulation, the North American was unable to cement the 9⅝-inch string and it was decided to drill ahead a little farther before attempting to cement under pressure. In addition to holding these two pipe records, California also has the deepest commercial producer. This was the Associated Oil Co.'s No. 57 Lloyd in the Ventura Avenue Field, finished in April, 1931, flowing 4,850 bbls. per day from a new deep virgin zone at 8,823 feet.

May Vote on Sharkey Bill

Governor Rolph revived interest in the Sharkey conservation bill early this week when he requested State Senator Will R. Sharkey of Martinez to summon the State's senate oil committee to consider the advisability of calling a special election for consideration of the Sharkey conservation bill and other measures similarly held up by referendum petitions. Governor Rolph will participate in whatever conference is decided upon in order that the Sharkey bill may be included along with the state-wide water program, if a special election is deemed necessary. The governor, while not definitely committing himself, has indicated he is seriously considering the advisability of calling a special election, but those in close touch with the administration are dubious whether this will be done as it involves an expenditure of approximately $500,000. Proponents of the bill have advised the governor that results from effective enforcement of the Sharkey conservation bill would far outweigh this expenditure on the assumption that stabilization of the California oil industry would be reflected in all other lines of endeavor.

The past few days brought forth some tangible evidence of a resumption in intercoastal shipments of gasoline to the Atlantic Seaboard for domestic consumption. The Richfield Oil Co. is restoring three inactive tankers to duty, in addition to the Tamiahua, which left for the East Coast last week. The boats restored to duty by the Richfield are the Pat Doheny, which left a few days ago with 78,000 bbls. of gasoline for New York, the Aguiworld, which left a day or two later with 80,000 bbls. of gasoline, and the Huguenot, scheduled to lift a load of gasoline for the Atlantic Seaboard on September 15. In addition to these boats, the tanker Ohio of the Cities Service Co. is also en route to Los Angeles to lift a load of gasoline for the East Coast.

Kettleman Middle Dome

It is pretty definitely determined that the Petroleum Securities has penetrated the Temblor formation in the middle dome of Kettleman Hills, although it is a little too early to venture an opinion as to the productivity of the Temblor in this section of the Kettleman Hills anticline. The gray sand characteristic of the productive Temblor in the north dome has been cored in No. 1 Burbank of the Petroleum Securities and this sand reacts quite favorably under ether and acetone tests. Gas pressure in No. 1 Burbank, while increasing with additional footage, does not compare, at least so far, with the high pressures encountered in the north dome. The well log indicates that the bit has penetrated a little over 200 feet into the Temblor, and, while officials of the Petroleum Securities are sanguine over the outcome, they are nevertheless maintaining a conservative attitude. The hole is correlating closely with typical wells in the north dome and the prospect of developing commercial production looks extremely bright. There is a pronounced thickening in the brown shale overlying the Temblor in the middle dome and a greater distance between the top of the Bentonite and the top of the Temblor. In the north dome the Bentonite marker is usually less than 100 feet above the top of the Temblor, whereas in the middle dome this was over 200 feet. The middle dome shows more promise than the north dome showed previous to the completion of the discovery well, and there is every reason to anticipate the development of commercial production. The middle dome has perfect closure on all sides and operators in this area have the added advantage of knowing that the Temblor has already been found productive in this district, a condition unrecognized previous to completion of the Milham Exploration Co.'s discovery well. The status of No. 1 Burbank of the Petroleum Securities is of the utmost importance to stockholders of the Bolsa Chica Oil Co. because of the holdings of that concern in the middle dome. This acreage was acquired several years ago by Irving V. Augur, who unfortunately passed away before the potentiality of these leases had been determined. The Bolsa Chica Oil Co. was the first concern to develop production at Kettleman Hills. This pioneer well, located in the middle dome, was good for 100 bbls. of 19 gravity oil per day from approximately 3,000 feet. Due to the absence of pipe line facilities and the overproduction of heavy unrefinable crude at that time, the well was not considered a commercial producer and accordingly shut down. The fact remains, however, that

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Commodity—	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Crude oil	.....	.....	.....	.....	.....	68,690
Fuel oil	.....	.....	.....	.....	.....	71,950
Diesel and gas oil	.....	.....	.....	.....	1,094,502	2,385,476
Gasoline	332,844	47,549	44,571	6,367	9,354,579	13,587,797
Kerosene	.....	.....	30,345	4,335	187,934	.....
Coastwise—						
Crude oil	656,722	93,817	423,508	60,501	15,210,447	10,356,603
Fuel oil	100,148	14,307	85,976	12,282	8,467,517	11,536,078
Diesel and gas oil	61,106	8,729	19,433	2,776	1,062,574	1,180,938
Gasoline	452,764	64,681	265,552	37,936	9,483,896	8,691,787
Kerosene	.....	.....	4,043	578	210,285	134,514
Naphtha distillate	.....	.....	.....	.....	4,952	.....
Exports—						
Crude oil	153,337	21,905	163,823	23,404	5,037,039	4,735,789
Fuel oil	272,791	38,970	121,971	17,424	9,393,224	12,176,089
Diesel and gas oil	75,183	10,455	.....	.....	2,526,814	3,133,485
Gasoline	48,568	6,938	80,883	11,555	6,142,659	10,863,092
Kerosene	55,115	7,874	10,549	1,507	1,124,714	2,790,716
Lubricants	.....	.....	.....	.....	36,353	14,680

TANKER SHIPMENTS FROM SAN FRANCISCO TO ATLANTIC, GULF COAST PORTS

Diesel and gas oil	.....	.....	.....	.....	.....	227,648
Gasoline	.....	.....	.....	.....	591,439	850,677
Lubricants	.....	.....	.....	.....	27,306	24,774
Coastwise—						
Fuel oil	.....	.....	.....	.....	2,599,899	2,337,108
Diesel and gas oil	60,180	8,597	1,511	216	339,850	190,516
Gasoline	343,593	49,085	206,147	29,450	2,956,254	2,749,974
Kerosene	.....	.....	11,597	1,657	234,140	154,222
Naphtha distillate	.....	.....	.....	.....	49,780	.....
Exports—						
Crude oil	.....	.....	.....	.....	107,736	3,075
Fuel oil	28,077	4,011	55,331	7,904	1,059,991	662,135
Diesel and gas oil	.....	.....	.....	.....	294,708	398,829
Gasoline	93,570	13,367	.....	.....	2,962,942	2,783,272
Kerosene	14,380	2,054	.....	.....	562,568	508,528
Lubricants	.....	.....	.....	.....	20,100	18,672

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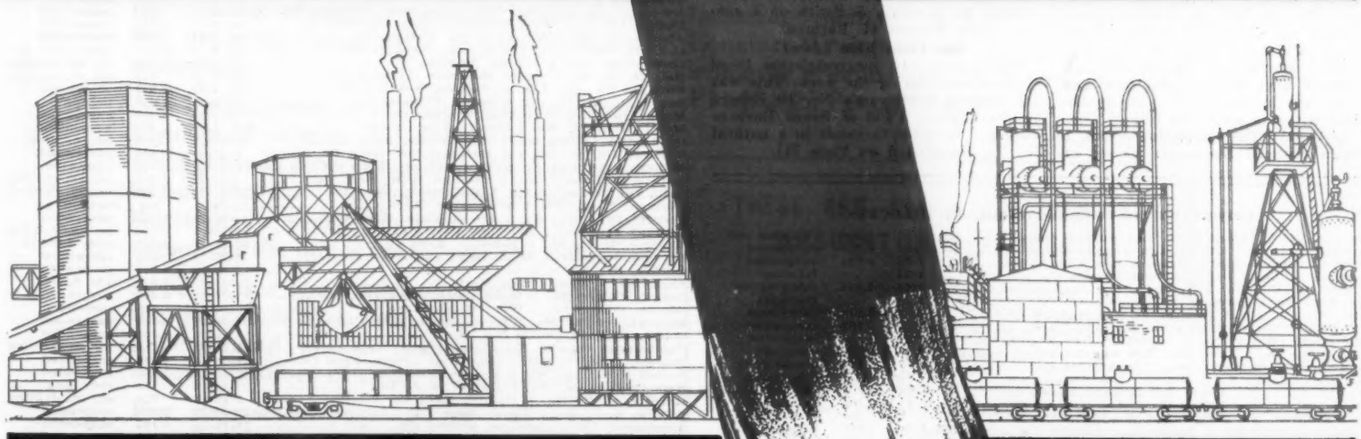

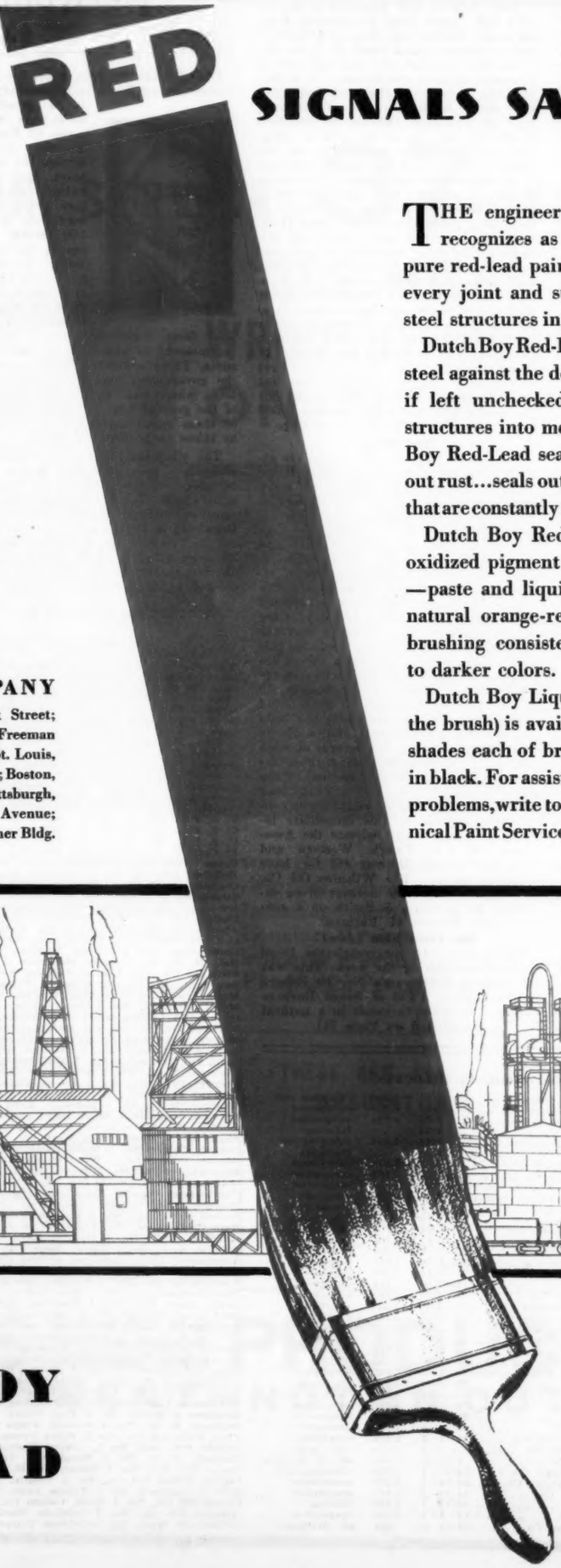

DUTCH BOY RED-LEAD

the Bolsa Chica actually developed the first production on the Kettleman Hills anticline but was unable to drill a deep conclusive test. The 19 gravity oil found by the Bolsa Chica and subsequently tested out by the General Petroleum Corp., a subsidiary of Socony, was of Pliocene origin, as compared with the light refining crude now being produced in the middle dome from the Temblor. Based on the limited data available, it appears probable that operators in the middle dome will be obliged to drill to great depths previous to completion.

Kettleman North Dome

When the Milham Exploration Co. completed its discovery well in the north dome at Kettleman Hills this field became the subject of considerable discussion because of the unusually high gravity oil produced. This crude, which tested approximately 60° A. P. I., was almost water white in color and not greatly unlike ordinary motor fuel in that it contained practically none of the heavier hydrocarbons normally present in unrefined crude. As additional wells were completed in the Elliott zone, the industry visioned an abnormal field of extensive proportions producing almost pure gasoline. For a long time refiners and marketers spoke of Kettleman Hills in whispers because of the threat that it might wreck the economic price structure for surely, they reasoned, fields producing normal black oil could not hope to compete with a field 11 miles long which produced oil requiring only a minimum amount of refining. What a change has taken place during the past year. This field is now producing a normal black oil testing approximately 38° A. P. I.

As a result of the regeneration of Kettleman Hills, there are only two wells producing white oil at present and these projects, No. 8-1P and No. 81-11P of the Standard Oil Co., are to be killed because of their excessive gas-oil ratio. These two wells are producing 1,700 bbls. and 1,675 bbls. per day, respectively, compared with an aggregate daily production of 57,000 bbls. of black 38 gravity oil produced by the other 20 wells in this field at the present time. The preponderance of black oil production in the north dome at Kettleman Hills has changed the economic influence of this remarkable field, although it will remain a factor of great importance because of the unusually large production secured. The transformation from a light oil field to a black oil field dates back to the completion of the Superior Oil Co.'s No. 1 Huffman, which, much to the astonishment of the industry in general, was brought in flowing 12,000 bbls. of 36 gravity black oil per day. This well was drilled entirely through the Elliott high-pressure gas zone and was finished in the lower part of the Temblor with the upper 300 feet of Temblor cased off. The completion of No. 1 Huffman changed the entire aspect of Kettleman Hills due principally to the exceptionally low gas-oil ratio.

The black oil now produced at Kettleman Hills comes from the Ochsner zone, so named because the General Petroleum had previously found black oil in its No. 1 Ochsner, although this well was shut in immediately upon completion. It is particularly appropriate that this productive zone should be designated as the Ochsner zone as Professor Ochsner of Stanford University was one of the first to recognize the productive possibilities of this area. Ochsner was so enthusiastic that he geologized the entire area and filed a number of claims. It is said that whenever Ochsner doubted the possibility of developing production at Kettleman Hills, and this happened quite frequently because of the many inconclusive tests and dry holes drilled, he would go over the field again and return more firmly convinced of its merits. Professor Ochsner died a few years ago just a short time before the Milham Exploration Co. started work on the well which was later to reveal the enormous potentiality of this remarkable field. A substantial part of Ochsner's original holdings were lost or disposed of previous to his death but the estate still has approximately 1,500 acres of potentially productive acreage.

Reef Ridge

Thomas H. Purman has focused the attention of operators on the Reef Ridge district, located approximately 8 miles southwest of the north dome of Kettleman Hills. The significance which attaches to this district lies in the fact that a test well started by Purman and subsequently taken over by Knudsen & Smith has revealed the possibility of resulting in commercial production. The well is standing cemented but is expected to be drilled out within a few days. Core samples indicate the possibility that the Temblor has been encountered in this well which, if true, may open up an entirely new field similar in some respects to Kettleman Hills. Approximately 50 feet of gray sand similar to that found productive at Kettleman Hills has been logged in the Purman well, and, while its potentiality is merely conjectural at present, it is the opinion among those familiar with work in this section of the San Joaquin Valley that it will bear close watching. The Standard owns considerable acreage in this immediate locality and lease maps indicate the Associated Oil Co., Pacific Western and Chanslor-Canfield Midway Oil Co. have extensive leases. The Wilshire Oil Co. has an interest in the acreage being developed by Knudsen & Smith on a sublease from Thomas H. Purman.

One Completion Listed

There was only one completion listed in California during the week. This was the General Petroleum's No. 10 Erburu in the Capitan Field of Santa Barbara County. It failed to result in a natural

(Continued on Page 73)

TURNER VALLEY OPERATORS THINK FIELD HURT BY TOO MANY WELLS

By Victor Lauriston
Staff Correspondent, Canadian Fields

CHATHAM, Ontario, Sept. 5.—In the Turner Valley Field, supplementary tests of a number of wells are being made by Frank P. Fisher, technical advisor to the Alberta gas conservation board, before prorating the maximum flow of 100,000,000 feet among the various wells. In connection with the general test made early in August, a number of wells were found which were not in shape at the moment to withstand the heavy pressures. These wells are being retested by the government expert, as are several wells which were frozen off at the time of the general test. Following completion of these supplementary tests, steps will be taken to prorate the flow.

The situation for Turner Valley operators has been somewhat improved by advances in the price of naphtha and light crude. These advances, announced simultaneously by Imperial Oil, Ltd., and Regal Oil & Refining Co., effective August 24, represented a general boost of 38 cents a barrel on Turner Valley production, making crude naphtha $3.12, discolored naphtha $2.88 and crude oil 50 degrees and higher $2.65. Crude oil, 45 to 49.9 degrees, was advanced 21 cents to $2.08. These increases reflect the general increase in crude oil prices following the Oklahoma and East Texas shutdowns.

Offsets Affect Production

That offset wells have affected production more than actual drain on the field, and that in some sections too many wells have been drilled, is the belief of many operators who hold that the field, efficiently handled, is good for many years. The first deep lime producer, Royalite Oil Co.'s No. 4 gusher, in Section 7-20-2w5, was for several years the only well drilled in that section, and maintained from 1924 to 1929 a pretty steady average crude naphtha recovery of 500 bbls. a day or better. On the other hand, the nearby Section 1-20-3w5 was pretty well perforated with deep holes, and though several tests, including Okalta Oils' No. 1 and at least two of the McLeod Oil Co. wells showed good initial production, they failed to hold up. In the south end Home Oil Co.'s No. 1 in Section 20-19-2w5, opened a new area of deep lime production with an exceptionally big well, Home's Nos. 2 and 3 were good initial producers, but the later Home wells were unsatisfactory. In all, about 15 wells were drilled in this section, and none today can be reckoned large producers. Calmont's No. 2, drilled on what seemed

(Continued on Page 81)

IMPORTANT SOUTHERN CALIFORNIA WILDCATS

Company, well, location—			Status
Hines Pet., No. 1 Ocean Park, Los Angeles Co.	9- 2-15	6,510	cleaning out
Taylor Oil Co., No. 1 Culver, Los Angeles Co.	12- 3-15	6,238	suspended
Mesmer City Corp., No. 1 Mesmer, Los Angeles Co.	24- 2-16	6,715	suspended
Farmer, Z. J., No. 1 Hermosa, Los Angeles Co.	6- 4-14		location
Westwood Oil Co., No. 2 Hermosa, Los Angeles Co.	6- 4-14	2,050	cleaning out
Baxter Pet., No. 1 Hermosa, Los Angeles Co.	5- 4-14		material
Thorpe Pet. Co., No. 1 Hawthorne, Los Angeles Co.	10- 3-14	3,840	suspended
Staple Oil Co., No. 1 Manhattan, Los Angeles Co.	24- 3-15	2,700	suspended
Pacific Shore Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
Smith, J. O., No. 1 Lawndale, Los Angeles Co.	20- 3-14	rig	suspended
York & Smullin, No. 1 Watson, Los Angeles Co.	29- 4-13	3,790	abandoning
Wilmington Consd., No. 1 Watson, Los Angeles Co.	17- 4-13	1,012	suspended
Pedro Pet. Corp., No. 1 San Pedro, Los Angeles Co.	14- 5-14	rig	rigging up
Brubaker, W. G., No. 1 Van Nuys, Los Angeles Co.	11- 2-15	2,700	suspended
Rucker & Croul, No. 2 Puente, Los Angeles Co.	27- 2-10	2,200	suspended
El Dorado Oil Co., No. 1 Puente, Los Angeles Co.	30- 2- 9	1,990	suspended
Cudahy Oil Co., No. 1 Bell, Los Angeles Co.	30- 2-12	1,370	suspended
Jones, W. L., No. 1 Bell, Los Angeles Co.	31- 2-12	rig	suspended
Blinn & Gray, No. 1 Montebello, Los Angeles Co.	6- 2-11	4,568	suspended
Yellowstone Oil Co., No. 1 Alhambra, Los Angeles Co.	24- 1-13	3,919	redrilling
Yellowstone Oil Co., No. 2 Alhambra, Los Angeles Co.	19- 1-12	2,015	plug 1,635 ft.
Rucker, L. W., No. 1 Calabasas, Los Angeles Co.	26- 1-17	753	br. sh. drilling
Caballero est., No. 1 Calabasas, Los Angeles Co.	23- 1-16	1,330	hd. sd. drilling
Olympic Corp., No. 1 Calabasas, Los Angeles Co.	18- 1-17	5,960	suspended
Simi Oil Co., No. 1 Calabasas, Los Angeles Co.	18- 1-17	rig	rigging up
W. Coast Waste Oil Co., No. 1 Van Nuys, Los Angeles Co.	14- 1-16	rig	suspended
Standard, No. 1 Newport, Orange Co.	26- 6-10	5,627	abandoned
Ajax Pet., No. 1 Newport, Orange Co.	21- 6-10	4,910	cleaning out
Beck, Alfred, No. 1 Corona, Riverside Co.	8- 4- 6	1,110	suspended
Alberta Oil Co., No. 1 Elsinor, Riverside Co.	35- 3- 2	3,435	suspended
Duncan, N. L., No. 1 Sagebrush, Riverside Co.	8- 4- 6	1,157	suspended
Colan Dev. Co., No. 1 Redlands, San Bernardino Co.	25- 1- 2	2,392	redrilling
Western Gulf, No. 1 Mahala, San Bernardino Co.	[illegible]	170	core hole
Mason Oil Co., No. 1 Salton Sea, Imperial Co.	1-17-15	550	sd. sh. drilling
Borderland Oil Co., No. 1 Encinitas, San Diego Co.	13-13- 4	2,519	cleaning out
Borderland Oil Co., No. 1 Point Loma, San Diego Co.	30-16- 3	5,120	suspended
South Bay Oil Co., No. 1 Border, San Diego Co.	31-18- 2	1,243	suspended
Itasca Pet. Co., No. 1 Mesa, San Diego Co.	32-18- 1	1,570	fishing
Carr, O. K., No. 1 Capistrano, San Diego Co.	13- 8- 8	5,250	suspended
Oklahoma Oil Corp., No. 1 Palma, San Diego Co.	25-11- 8	100	sd. drilling

IMPORTANT NORTHERN CALIFORNIA WILDCATS

Company, well, location—			Status
Western Gulf, No. 1 Santa Maria, Santa Barbara Co.	5- 9-35	7,250	br. sh. drilling
Midwest Oil Co., No. 1 Los Alamos, Santa Barbara Co.	2- 7-35	3,450	suspended
Zaca Oil Co., No. 1 Los Olivas, Santa Barbara Co.	30- 7-31	rig	suspended
Ohio Oil Co., No. 1 Goleta, Santa Barbara Co.	16- 4-28	2,615	sd. sh. drilling
General Pet., No. 1 Goleta, Santa Barbara Co.	21- 4-28	4,533	gas—shut in
General Pet., No. 2 Goleta, Santa Barbara Co.	21- 4-28	4,350	gas—shut in
General Pet., No. 3 Goleta, Santa Barbara Co.	21- 4-28	6,675	Sespe format'n
General Pet., No. 133 Goleta, Santa Barbara Co.	21- 4-28	2,030	suspended
General Pet., No. 134 Goleta, Santa Barbara Co.	21- 4-28	2,053	suspended
General Pet., No. 136 Goleta, Santa Barbara Co.	21- 4-28	2,047	suspended
General Pet., No. 137 Goleta, Santa Barbara Co.	21- 4-28	2,050	suspended
General Pet., No. 138 Goleta, Santa Barbara Co.	21- 4-28	4,931	suspended
General Pet., No. 139 Goleta, Santa Barbara Co.	21- 4-28	2,051	suspended
Bowles Oil Co., No. 140 Goleta, Santa Barbara Co.	21- 4-28	2,065	suspended
U. S. Pet., No. 141 Goleta, Santa Barbara Co.	20- 4-28	2,004	suspended
U. S. Pet., No. 142 Goleta, Santa Barbara Co.	20- 4-28	2,012	suspended
U. S. Pet., No. 143 Goleta, Santa Barbara Co.	20- 4-28	2,010	suspended
El Camino, No. 149 Goleta Tideland, Santa Barbara Co.	22- 4-28	2,010	suspended
Bolsa Chica, No. 191 Goleta, Santa Barbara Co.	24- 4-29	5,510	abandoning
Beliview Oil Co., No. 159 Goleta, Santa Barbara Co.	24- 4-29	2,099	suspended
Cochran, J. H., No. 1 Naples, Santa Barbara Co.	7- 4-29	5,134	suspended
Strickland & Tippet, No. 1-A Goleta, Santa Barbara Co.	19- 4-27	4,500	suspended
Sovereign Oil Co., No. 1 Guadalupe, Santa Barbara Co.	20-10-35	5,500	suspended
Pacific Western, No. 1 Gibraltar, Santa Barbara Co.	14- 5-27	2,345	suspended
Associated, No. 1 Rincon Creek, Ventura Co.	19- 4-24	2,030	suspended
C. C. M. O. Co., No. 2-A Rincon, Ventura Co.	23- 3-24	10,030	plug 7,825 ft.
Continental, No. 1 Rincon, Ventura Co.	23- 3-24	6,295	br. sh. drilling
Bell, H. H., No. 1 South Mountain, Ventura Co.	22- 3-21	645	sd. sh. drilling
Pure Oil Co., No. 1 S. F. Canyon, Ventura Co.	15- 4-21	2,591	suspended
San Pedro Oil Co., No. 2 Sespe, Ventura Co.	13- 4-21	3,410	fishing
Magu Synd., No. 1 Oxnard, Ventura Co.	17- 1-21	4,910	suspended
Mex Cal Oil Co., No. 1 Conejo, Ventura Co.	12- 1-20	240	suspended
Graham & Loftus, No. 1 Goose Lake, Kern Co.	20-27-22	498	sd. drilling
Wilshire Oil Co., No. 1-A Buttonwillow, Kern Co.	7-29-24	7,000	suspended
Milham Expl. Co., No. 7 Buttonwillow, Kern Co.	6-28-23	3,050	cemented
Kent & McDonald, No. 1 Temblor Hills, Kern Co.	3-32-22	1,980	br. sh. drilling
Calif. Oil Producers, No. 1 McKittrick, Kern Co.	30-30-22	5,675	br. sh. drilling
Purman, T. H., No. 1 McKittrick, Kern Co.	22-29-21	rig	rigging up
Federal Drlg. Co., No. 1 Buena Vista, Kern Co.	30-31-24	5,367	suspended
General Pet., No. 1 Belridge, Kern Co.	30-28-21	6,100	br. sh. drilling
Wallace, K. C., No. 1 Belridge, Kern Co.	32-29-21	4,222	plug 2,600 ft.
Rio Cal. Pet., No. 1 Shale, Kern Co.	2-27-18	2,355	suspended
Wicker, Sy., No. 1 Arvin, Kern Co.	12-30-28	3,580	suspended
Shell, No. 1 Weed Patch, Kern Co.	29-30-29	5,910	130 B/D
Osborn, Colter, No. 1 Weed Patch, Kern Co.	15-30-29	3,465	suspended
Osborn, Colter, No. 2 Weed Patch, Kern Co.	15-30-29	1,990	suspended
Mohawk Oil Co., No. 1 Weed Patch, Kern Co.	32-30-29	6,150	suspended
Standard, No. 1 Devils Den, Kern Co.	14-25-18	1,600	suspended
Cumberland Oil Co., No. 2 Devils Den, Kern Co.	21-26-18	1,760	br. sh. drilling
Temblor Dev. Co., No. 1 Blackwell Corner, Kern Co.	14-26-19	1,030	suspended
United Kern Pet., No. 1 Mojave, Kern Co.	26-10-14	1,065	suspended
Kendall Dev. Co., No. 1 Mojave, Kern Co.	27-11- 9	511	redrilling
Harding, J. B., No. 1 Mojave, Kern Co.	5-10-10	376	gr. sd. drilling
Ritchie, J. J., No. 1 Tejon, Kern Co.	33-11-19	6,025	suspended
Associated, No. 1 Jacalitos, Fresno Co.	22-21-15	6,197	suspended
Panorama Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-31-21	4,010	suspended
Trav-El Oil Co., No. 1 Carrizo, San Luis Obispo Co.	7-32-22	2,450	hd. sd. drilling
Paso Robles Synd., No. 1 Paso Robles, San Luis Obispo Co.	34-27-11	4,040	suspended
Latin Amer. Pet., No. 1 Shandon, San Luis Obispo Co.	21-27-15	4,615	suspended
Cent. Coast Inv. Co., No. 1 Atascadero, San Luis Obispo Co.	1-28-12	rig	rigging up
Schilling, C., No. 1 Atascadero, San Luis Obispo Co.	24-28-12	1,475	sd. sh. drilling
Arrejas, A. T., No. 1 Arroyo Grande, San Luis Obispo Co.	6-32-12	1,875	plug 950 ft.
Pacific Inland, well No. 1, Monterey Co.	19-23-15	1,345	fishing
Brown, W. F., well No. 1, Monterey Co.	13-23-14	800	suspended
Irma Investment Co., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,345	gas well—idle
O'Donnell, J. E., No. 1 Dudley Ridge, Kings Co.	7-23-20	1,635	gas well—idle
Eagle Oil Co., No. 1 Dudley Ridge, Kings Co.	15-23-20	rig	suspended
Kettleman Lakeview, No. 1-A Dudley Ridge, Kings Co.	20-23-20	2,040	recemented
Knudson & Smith, No. 1 Reef Ridge, Kings Co.	36-23-17	4,315	cemented
Seymour, L. W., No. 1 Avenal, Kings Co.	10-23-16	1,148	suspended
Twin State Oil Co., No. 1 Point Arena, Mendocino Co.	14-12-17	7,250	hd. sd. drilling
Orinda Pet., well No. 1, Contra Costa Co.	32- 1- 3	2,850	cleaning out
Gholson, F. N., No. 1 Porterville, Tulare Co.	3-23-27	1,400	to abandon
Ducor Pet. Co., No. 1 Ducor, Tulare Co.	14-24-27	2,150	redrilling
Inland Valley Oil Co., No. 1 Visalia, Tulare Co.	24-17-24	2,992	suspended
Ellis & Stanford, No. 1 Tulare Lake, Tulare Co.	20-24-23	1,498	suspended
Colusa Oil Co., No. 1 Bush, Colusa Co.	31-15- 4	955	hd. sd. drilling
Oakdale Oil Co., No. 1 Oakdale, Stanislaus Co.	3- 2-10	4,195	hd. sd. drilling
Orland Oil Synd., No. 1 Orland, Tehama Co.	31-23- 3	2,520	redrilling

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300 MILES OF WROUGHT-IRON NOW ON NEW JOB!

Never before has a spirit of economy more strongly prevailed than today. Frequently the value of wrought-iron is lost sight of in the apparent lower cost of less durable materials.

Not long ago one of the large oil producers abandoned about 300 miles of genuine wrought-iron pipe, ranging in size from two to four inches. In underground service for thirty-seven years the pipe was "just as smooth as the day it came from the mill."

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For sixty-seven years A. M. Byers Company has been establishing "new highs" in wrought-iron quality. The physical and chemical control which our modern manufacturing methods permit makes Byers Genuine Wrought-Iron the best wrought-iron ever produced. A. M. Byers Company, Pittsburgh, Pennsylvania.

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BYERS GENUINE WROUGHT-IRON PRODUCTS

AN INVESTMENT—NOT AN OUTLAY

Unusually Good Well in Medina County

Largest Initial Producer Reported From Central Ohio Field in Many Months. Progress of Kentucky and Michigan Operations

By George A. Whitney
Staff Correspondent, Central West Fields

FINDLAY, Ohio, Sept. 7.—Since the last review of the Lima Field only one completion was reported and that was by the Lake Shore & Southwestern Metal Co. of Wilmington, Del., on the Matt Thome farm, in Henry County, a mile east of New Bavaria, between Maumee and New Bavaria, which showed 541,000 feet of gas from the Trenton formation. This development work is outside of the old defined limits of what is known as the Lima Field proper. Same company is still working on the Henry Keckley farm, Section 7, Grand Rapids Township, Wood County, and not far from the Maumee River.

Mathias Brothers are drilling No. 15 Isaac Hart farm, Section 27, Portage Township, Hancock County, in the eastern part of the county. In Monclova Township, Lucas County, M. Gray and others are drilling No. 1 Keil Brothers' 100-acre farm, Section 28, Monclave Township. Kurtz Gas Co. is still working on the William F. Kurtz farm, Section 20, Jackson Township, Hardin County, where gas is being sought. No report has been made of McPharon and others' No. 1 Ella Walton farm, Section 16, Tymochtee Township, Wyandot County.

CENTRAL OHIO

An unusually large oil well has been brought in in the shallow field of Central Ohio, Edson Sons Co.'s No. 18 George W. Packard No. 1 farm, in Lot 4, Section 13, Chatham Township, Medina County, which produced an initial of 75 bbls. from 413 feet. This is the largest initial producer reported from this old field for many months. Commonwealth Oil Corp. made a location on the Dick Barnes, Section 18, Homer Township, same county.

In Athens County, York Township, the Nelsonville Gas Co.'s test on the Eileen Stratton farm, Section 5, came in a surprise, showing an initial production of 60 bbls. from the Clinton lime from 3,487-3,514 feet, total depth 3,518 feet. In the same township, the Standard Natural Gas Co.'s test on the T. L. Young farm, Section 7, found gas from 1,030-39 feet.

In Belmont County, Somerset Township, Washmuth & Callahan's test on the G. and H. C. Butler farm, Section 20, is rated as a 3-bbl. pumper from the Berea sand from 1,799-1,809 feet, total depth 1,858 feet. McMillan and others' No. 1 William F. Simpson farm, same section, showing for 5 bbls. from 1,924-35 feet, also in the Berea sand.

In Meigs County, Salisbury Township, the Ohio Fuel Gas Co. has a light gas well in No. 2-5543 William Seyfried farm, Sections 34 and 35 in the Maxon sand.

The test being made by H. E. Perkins on the C. R. Levering farm, Sections 5-9, Chester Township, Morrow County, is no doubt a dry hole, as no Clinton formation was found at 2,206 feet. The hole was drilled deeper finding the top of the Trenton at 3,220 feet and went to a reported depth of 3,720 feet, mighty close to the St. Peter formation.

Harmon and George are drilling No. 3 on the Thomas Arnold farm, Section 11, Chester Township, Wayne County. Murphy and others made a location on the Myers & Moshoder farm, Section 15, Perry Township, Coshocton County.

Status Development Co. is drilling on the Edward V. Steel farm, Section 26, Sandy Township, Tuscarawas County.

DeWalt and others are drilling on the Moock & Czech farm, Section 3, Osnaburg Township, Stark County. In Jackson Township, same county, where great activity is going on, the East Ohio Gas Co. made a location for No. 1 George H. Charles, Section 25, and for No. 1 Eva M. Sisler farm, Section 16. Medford Oil & Gas Co. is drilling No. 1 John Marzille, Section 26, and No. 1 on the Whitmyer heirs' farm, Section 5, is also drilling. Bettler and others are drilling No. 1 P. L. Schuffell larm, Section 1, same township.

Whitehill Oil Co. is drilling on the J. and P. Allen farm, Section 3, Jackson Township, Knox County.

In Guernsey County, Jackson Township, W. C. Urban and others are drilling on the John Brock farm, Section 14. Keith Brothers are starting a test on the William T. Virtue farm, Section 12, Wheeling Township, same county.

INDIANA

Three completions were reported from Indiana, all being dry holes. The Prairie Oil & Gas Co. of Indiana drilled one of the dry holes on the N. W. Hocker farm, Section 7, Boone Township, Warrick County. This well was 800 feet from the south line and 400 feet from the west line of the farm, in the southwest quarter of the section.

R. Brandeberry's test on the Truman Lammers farm, Section 6, Grass Township, Spencer County, in the southern portion of the State proved a dry hole. J. H. McClurkin's wildcat on the Frank Dalassa farm, NW, Section 25, Clark Township, Perry County, also proved dry.

C. E. Wommer is drilling on the R. M. Craig farm, Section 23, Jefferson Township, Pike County. Same party is drilling No. 1 S. T. Morgan farm, Section 26, Washington Township, same county. Wabash Public Service Co. is drilling No. 1 J. Wesley Poad farm, Section 32, Clay Township, same county.

ILLINOIS

Only one well was reported, a wildcat by J. E. Ellis and others on the Charles Grossee farm, Section 33, Columbia Township, Monroe County, which was a duster.

In the Dupo Field, Sugar Loaf Township, St. Clair County, Jacob Schellhardt abandoned his Nos. 1 and 2 E. Propper farm, in the SE, Section 21, and L. G. Blackman and others did the same with L. Fred Kelley property, in the same quarter, section and county. The shallow wells in the Dupo Field are being abandoned about as fast as the wells were drilled in, the wells failing to hold up.

No report has been made of a test being drilled by Duncan Machine & Foundry Co. on the H. Woolridge farm, Section 23, Dorchester Township, Macoupin

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Eleven Completions in Eastern Fields

Four Oil Producers, Seven Gas Wells, Four Dry Holes Reported. Increase in Drilling Operations in Some Areas

By Staff Correspondent

PITTSBURGH, Pa., Sept. 7.—A further increase in the price of crude and the heavy seasonal demand for crude is reflected in an increase in drilling operations in the eastern fields. Completions in these fields during the past week totaled 11. Four dry holes were also reported. The Southeast Ohio Field reported two oil producers, with an initial production of 2½ bbls., two gassers and two dry holes. The West Virginia Field has five gassers, one oil producer good for 1 bbl., and one dry hole, and the Southwest Pennsylvania Field has a dry hole and one oil well producing 4 bbls. The summary for the week's work is four oil wells, seven gassers and four dry holes.

SOUTHEAST OHIO

In Franklin Township, Monroe County, William E. Gerber and others completed their second test on the W. W. Marsh farm in the SW Section 22 in the Squaw sand after sinking the drilling tools down to a depth of 1,400 feet. This well is producing at the rate of 2 bbls., which was the initial 24-hour production after being shot. The test of Homer Newhart and others on the Maggie Lisk farm on Wilson Run in Section 3 of Ludlow Township, Washington County, was brought in at 1,680 feet in the Squaw sand as a combination well. It produced a quarter barrel natural for the first 24 hours and one-half barrel in the first 12 hours after being shot. This well is also flowing 100,000 feet of gas.

The Standard Natural Gas Co. has a 500,000-foot gasser in its test on the R. Young farm on Hamkey Run in Section 12, Waterloo Township, Athens County, from Grit at a depth of 1,045 feet. This well also has a small showing of oil. The Wehrle Co. completed its test at the corner of the J. A. and A. J. Loughman and A. H. Hartman farms in the NW Section 14, Hopewell Township, Licking County, in the Clinton sand at a depth of 3,145 feet. It is a 400,000-foot gasser. It was only drilled into the sand about 10 or 12 feet, and the owners have decided not to drill through the sand or shoot the well at present.

The Atha Oil Co. found the Medina sand in its test operations on the Richard Huff farm in the SE Section 3, Wayne Township, Muskingum County, to be dry after drilling through the Clinton sand to the Medina sand at 3,190 feet. The second test of Way Wickens and others on the J. M. Rowlands farm in the NW Section 32, Enoch Township, Noble County, was also found dry, and in the Buell Run sand at a depth of 469 feet. There was some 16 feet of broken sand at the top of the Buell Run sand, which was found at 453 feet, and this broken sand showed neither oil nor gas.

Drilling in Ohio

In Carroll County, Eaton and others have their No. 8 well on the Nelson E. Slates farm in Louden Township down to 1,100 feet, and the drilling tools in their No. 4 well on the Jennie Chase farm in the same Township are at 1,200 feet. George W. Elliott and others have drilled their No. 3 well on the H. G. Buchanan property down 1,250 feet. The Buchanan farm is also located in Louden Township. The Lisbon Oil & Gas Co. and others' No. 4 on the James M. Hanna lease in Center Township has been drilled to 1,200 feet.

W. G. Perrigo and Co. have constructed a rig on the J. A. and W. E. Donnelly farm in Jackson Township of Perry County for a No. 6 well.

WEST VIRGINIA

Three of West Virginia's five gassers are in the million foot class. Godfrey L. Cabot's No. 48 well on the Federal Coal Co. tract in Sherman district, Boone County, was completed in the Maxon sand at 2,416 feet as a 1,500,000-foot gasser natural. No. 5 of the same operator on the Mary Dickinson farm in productive Boone County is producing better than 1,250,000 feet of gas natural from the Maxon sand after being drilled down 2,617 feet. The test operation of Godfrey L. Cabot on the Central Trust Co. property in the same district was completed as a light gasser at a depth of 2,568 feet. In Sheridan district, Calhoun County, Creed Barker and others brought in their second test on the C. L. Richards heirs farm as a 1,000,000-foot gasser. This well is producing from the Injun sand. On the waters of Yellow Creek and on the B. R. Holbert farm in Sheridan district, Calhoun County, C. B. Lewis and others have a small gasser from the Injun sand. This is a test well.

In Butler district, Wayne County, G. W. Romk's farm is the location of a second test belonging to the Chartiers Oil & Gas Co. This well was completed in the Berea sand at a depth of 2,094 feet for an estimated 1-bbl. producer.

The Cow Run sand on the W. F. Holmes farm in Union district, Tyler County, was found dry in No. 7 well of C. R. Mitchell on that farm. The owner has not decided whether to pull this well out or to drill deeper.

Three operations in the West Virginia Field are awaiting tests. They are the second test of the Woodyall Gas Co. on the James Walker Adkins farm in Union district, Lincoln County, at 2,326 feet and in the Berea sand; the test of the Madison Gas Co. on the Nelson Holton lease in McComas district, Cabell County at 3,080 feet and in the Brown shale; and the second test on the Mary E. Doss farm belonging to Maebon and Huffman in Stonewall district, Wayne County at 1,660 feet and in the Big Injun sand.

Drilling in West Virginia

In Gilmer County the Mud Lick Oil & Gas Co. has its second test on the T. M. Lynch farm in Glenville district down to 1,600 feet. In Dekalb district, Frank Golden and others have a rig standing on the H. E. Engle heirs farm, and in Center district, the Chartiers Oil Co. has selected a location for No. 4 well on the G. D. Stump lease.

The Myers Oil Co. has a rig standing for a test on the C. M. Strickland farm in Sandhill district, Marshall County. The Manufacturers Light & Heat Co.'s well No. 1,975, on the L. Burley farm in Liberty district, is drilling at 2,425 feet. This is an old well being drilled deeper.

In Cabell County, Wilson and Nowery have part of the material on the ground on the H. M. D. Kyle property in Barboursville district, and in the same district, the Sure Shot Torpedo Co. has selected a location on its own lot for a test. In McComas district, the Copeland

(Continued on Page 75)

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In 1850, William Barnsdall, the father of T. N. Barnsdall, the founder of BARNSDALL, established the world's first oil refinery.

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Field Problems and Their Solution

EDITED BY THOMAS F. SMILEY

In order that men connected with the drilling, producing and transporting branches of the petroleum industry may procure quickly a solution of many problems confronting them from time to time in their work, The Oil and Gas Journal has arranged with leading engineers and other recognized authorities to answer questions submitted by readers of this publication pertaining to the work of drilling and producing crude oil and transporting this product.

Everyone is invited to submit questions freely. These questions will be submitted to proper authorities by Mr. Smiley, who edits the page, and answers, based on the best available information, will be published. Each question should give as much detail as possible, especially where it relates to matters where depths of sands, types of sands and operations on adjoining properties would have a bearing on the problem involved. The source of all questions will be considered as confidential and only initials will be published in connection with the question.

In this connection, The Oil and Gas Journal will be glad to publish articles from field men who have devised new methods or practices which are improvements.

In case an immediate answer is important, one will be given by mail if the writer requests it.

GRAPH FROM WELL SURVEY

Are there many methods by which the hole's deviation from vertical can be shown on a graph made by lowering the device into the hole? Would such a device be of commercial value?—C. D. O.

There are various instruments used in surveying wells and a bibliography of articles on this subject prepared by the Technical Department of the Tulsa Public Library will give you an idea as to what has been written. Not knowing how you plan to use the graph to get a record of a well survey it cannot be stated definitely whether any of these instruments incorporate your idea, but all of them have some type of recording device. Many of them have recording devices that might be classified as graphic, and are inclosed in the instrument case or operate at the well head.

If you are interested in patenting a surveying instrument it is suggested that you have some reliable attorney make a patent search in Washington and send you copies of all patents granted, for this idea has received such attention in recent years that a great number of devices have been made and patented and nearly every type of instrument is represented.

The commercial value of such an invention at this time is problematical because there are already well established companies making and selling or servicing surveying instruments and for another company to enter the field would only further divide the small amount of business available.

Drilling activities have fallen off materially this year. Only 6,373 wells were drilled during the first half of 1931 as against a normal drilling of 10,000 to 11,000 wells in the same period. Of the wells drilled a relatively small percentage are surveyed.

SEEPAGES AROUSE CUROSITY

At Cottonwood, Ala., about two years ago the water wells began giving up oil that was so refined that it would run an automobile. The state geologist was invited down to investigate. He pronounced it weathered gasoline as a seepage from filling stations. This oil continued to come into all the water wells in enormous quantities. It seemed unreasonable that as much as 10 gallons per day would be drawn from the wells for a period of six months, and upon pumping the well dry there would be four or five streams of oil seen coming into it. Now this seepage continues to come into the springs, wells, etc., within a radius of 20 miles in this section in enormous quantities. Some of them are a mile from any filling station. I was with a geologist a short time ago in a creek swamp and he asked me to punch a hole at the edge of the water and then on withdrawing the stick to hold a lighted match over the spot. There was a flash that almost burned my hand. A greasy fluid followed the water out into the stream. If this is weathered gasoline why will it do this 5 miles from a filling station?—H. C. S.

You state that oil of high gravity has been found in water wells and along streams and that it flashed when ignited. You also state that this oil was found "in enormous quantities" in springs, wells, etc., within a radius of 20 miles and all far from filling stations.

Without samples of the fluid and some definite geological data about the formation from which it came, it is difficult to obtain a definite opinion regarding this phenomenon but commercial oil possibilities are believed to be limited because of the fact that the fluid is found so close to the surface.

Geological works at hand make no reference to oil or gas possibilities in Houston County, Alabama. It is suggested that you refer this problem to the Geological Survey of Alabama and obtain from the survey copies of such bulletins on this subject as it still has in print, also bibliography of other articles on petroleum in Alabama.

Arnold and Kemnitzer in their book just off the press, entitled, "Petroleum in the United States," state that there have been 167 wildcat wells drilled in Alabama from 1865 to 1928 inclusive, discovering three small short-lived gas fields. Only 1 well in more than 55 made a discovery. The data of geology and technology do not indicate a better record for the future, though improvement in drilling technique and the application of geologic principles may increase the likelihood for discovery.

ASCERTAINING SAND POROSITY

Kindly explain a practical method of determining the porosity of pay sand for oil and also for natural gas. In practice how do they determine the exact bottom-hole pressure of a well?—C. S. D.

The Oil and Gas Journal of November 7, 1929, contains an article on "Sand Study Becoming More Important," which will give you the desired information on this subject.

For information regarding methods of obtaining bottom hole pressures of wells read the following articles that have appeared in The Oil and Gas Journal: "Tulsa A.I.M.E. Meeting Discusses Bottom Hole Pressure Problems," May 21, 1931; "Amerada Pressure Bomb," May 14, page 95; June 25, page 54, article about electrical recording device, by John H. Payne; "Review of Progress in Engineering," July 30, page 83.

PROTECTING TANK BOTTOMS

Please tell me how asphalt and some form of protective paper are applied to tank bottoms on the outside to prevent corrosion. Will this method stop corrosion that already has begun to eat through? Is it effective, if effective at all, for all kinds of corrosion or just certain kinds? If I am not asking too much I would appreciate some information as to what the different kinds of corrosion that attack tanks are. Will there be one kind of corrosion in one field and some other kind in another field?—D. T. N.

Answering your last two questions first it will be found that there are different kinds of corrosion that affect tanks and they might be classed roughly as corrosion caused by waters and corrosion caused by sulphur compounds. There are many combinations of these two general causes and they work on both the inside and outside of steel tanks.

The use of paper to protect the tank bottom against attack from the outside is desirable in many cases, especially where the grade on which the tank is set is moist and there is salt water present. To give the best protection to the steel a good grade of asbestos paper should be used and stuck to the bottom with asphaltum that may be applied hot or cold. Some types of roofing paper will not last long when in contact with moisture and for this reason care must be taken in selecting material to be used.

In applying the paper it is well to turn all sheets making up the bottom with the bottom side upward and first smear the surface with the asphaltum and then roll the paper over this prepared surface and carefully press out all air bubbles formed under the paper. The paper should not lap over the seam where the sheets will be joined with bolts and gasket, for if the paper should come into contact with the oil there would be leaks by seepage through it.

Where the sheet is against the ground the paper should make full coverage and after the several plates making up the bottom have been bolted together the seams and bolt-heads should be covered with asphaltum also. If this work is properly done a good protective coating will be formed and it will last for a long time. Care should be taken in making the grade so that all parts of the bottom will be supported and this will hold the paper against the steel and aid in giving protection.

The type of corrosion against which this kind of protection will best operate is that due to salt water in the soil and it will not aid any in preventing interior corrosion in the tank.

WHY WAS IT CALLED THAT?

CANAL SPOON

"Canal spoon," the name applied to a shovel by pipe liners in some districts, is just one of the many curious expressions that enrich the pipe line vernacular. How the term originated is mystifying until it is realized that "canal" is simply the trench dug for the pipe and "spoon" is a humorous reference to the tool with which in the old days all digging was done. "Canal shovel" is a name of reputable standing in the equipment trade, as may be ascertained by turning to the catalogs. A long-handled shovel sometimes is called a "muck-stick," not only along the pipe line, but in the oil fields generally.

BIG LAKE BASIN FIELD

I would like to have a little history of the Big Lake Basin Field in Texas, including the depth of the discovery well, the manner in which it started to produce and how the production increased from month to month.—A. W. S.

You will find much of the data you desire in an article by Ray V. Hennen, chief geologist for the Transcontinental Oil Co., published in Volume 2 of "Structures of Typical American Oil Fields," starting on page 500. This book may be obtained from the American Association of Petroleum Geologists, Tulsa Building, Tulsa, for $6. In addition to this report it contains many others on United States oil pools. Mr. Hennen gives the history of the field, log of the deepest well, a map of the field, character of the oil, geological data and an appendix covering the drilling of the deep well.

The discovery well in the shallow pool was completed May 28, 1923, and later other and lower zones were opened until on December 1, 1928, the oil zone below 8,500 feet was opened.

In The Oil and Gas Journal of April 2, 1931, page 132, James McIntyre gives the production of all major pools from 1925 to 1930 inclusive, and he includes the Big Lake Pool as follows: 1925, 8,759,457 bbls.; 1926, 10,978,135 bbls.; 1927, 8,668,381 bbls.; 1928, 7,039,043 bbls.; 1929, 6,425,664 bbls., and 1930, 7,016,204 bbls.

A bibliography of articles on this pool may be obtained from the technical department of the Tulsa library. The following recent articles have appeared in The Oil and Gas Journal: "Drilling Below 8,000 Feet at Big Lake," Bignell, April 17, 1930; "Tubing Wells Under Pressure," Brett, November 13, 1930; "Texas Deep Wells Successfully Tubed," Bignell, December 4, 1930; "Bottom Choke Decreases Gas-Oil Ratio," Otis, May 21, 1931; "Killing Big Well in Big Lake," Bignell, April 16, 1931.

LARGE-SIZE STOPCOCKS

Are stopcocks made in any larger size than 6 inches? Catalogs that I have consulted do not show any larger sizes. This is the stopcock commonly used in oil fields on lease-tank pipe-line connections. If there are none manufactured larger than the size mentioned can you tell me why? Is it for some mechanical reason, such as too much friction in turning or is it simply because there is no demand for them?—F. L. C.

The common type of stopcock such as is used for pipe-line connections on tanks is made in sizes from one-half-inch to 8 inches. This limit is due to mechanical friction between the plug and seat in this type of cock.

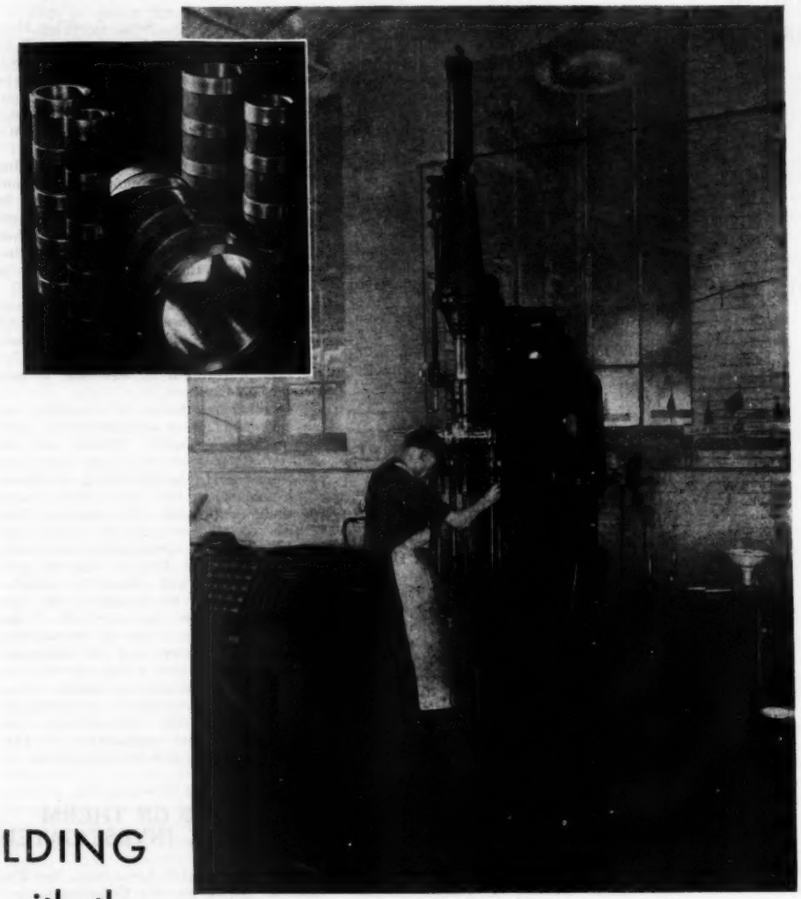
A new type of lubricated cock now being offered by several manufacturers will be built in sizes up to 20 inches and as much larger as conditions demand. In this new type of cock a lubricating material is forced between plug and seat under high pressure and in this way friction is so reduced that the cocks can be operated without difficulty.

OIL WELL CEMENTING PRACTICE

Will you be good enough to recommend to me the best literature obtainable dealing with current oil well cementing practice and its many problems?—D. R. H., Bushire (Persian Gulf).

You are referred to an article printed in The Oil and Gas Journal of January 29, 1931, prepared by C. P. Parsons and T. W. Rakestraw and entitled "Current Oil Well Cementing Practice."

STRAIGHT FACTS··the 16th of a series and the THIRD on Liners



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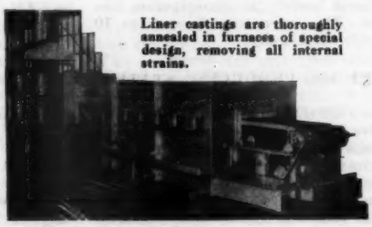

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AXELSON PUMP LINERS

Natural Gas Industry Developments

Major T. J. Strickler To Be Chairman of Natural Gas Dept.

Maj. T. J. Strickler, manager of the Kansas City Gas Co., formerly of the Empire Companies with headquarters in Bartlesville, has been selected by the nominating committee of the Natural Gas Department of the American Gas Association for election as department chairman at the annual American Gas Association convention in Atlantic City in October.

CALIFORNIA OUTPUT REDUCED THIS YEAR

LOS ANGELES, Calif., Sept. 5.—Natural gas production in California during the first six months of 1931 decreased 27.3 per cent and there was a reduction of 61 per cent in wastage as compared with the first half of 1930, according to a statement issued by the Railroad Commission.

Figures compiled by Claude C. Brown, gas and electric engineer for the commission, the statement said, showed total production in the six months of last year to have been 288,949,200,000 cubic feet, compared with 209,976,300,000 cubic feet this year. Sales to gas companies in 1931 totaled 79,502,600,000 cubic feet, compared with sales of 66,999,300,000 cubic feet in the first half of 1930.

"Savings to consumers," the commission's statement said, "where natural gas displaced manufactured gas are estimated by Engineer Brown at from 40 to 50 per cent, as compared with what they would have paid if manufactured gas had been used. These savings apply to large areas in northern and central California which have recently been placed under natural gas service, and amount to many millions of dollars."

SEAGRAVES THINKS OIL WILL LEAD WAY

A general improvement in business will probably follow closely on any sustained improvement and higher prices in the oil industry, according to O. R. Seagraves, chairman of the Republic Gas Corp., vice chairman of United Gas Corp.

"The oil industry is probably the largest in this country, excluding agriculture," said Mr. Seagraves. "Its investment totals more than $12,000,000,000 and it employs approximately 2,500,000 persons. Its stockholders are estimated in number over 2,000,000. Better times among this great mass of people connected with the oil industry are bound to prove of widespread benefit generally. In addition, the tremendous expenditures of oil companies for higher royalties, supplies, transportation and wages will stimulate business improvement.

"Oil was one of the first commodities to be deflated, the movement having started in 1925, and it is logical that it should be the first to turn upward. As this occurs other commodities should reflect the trend in varying degrees, depending on conditions within individual industries."

ERIE GAS INCORPORATED

CHATHAM, Ontario, Sept. 7.—An Ontario charter has been granted to Erie Gas, Ltd., Toronto. The capitalization is 200,000 no par shares, and T. H. Rea and L. K. Fletcher, mining engineers, and E. M. Begg, barrister, all of Toronto, are named as provisional directors. The object of the company as specified in the charter is to drill for oil and gas, though pipe line, refining and marketing powers are also granted.

CHICAGO GAS RATE REDUCTION SUSPENDED

CHICAGO, Sept. 7.—The Illinois commerce commission has suspended until January 23, the new reduced rates proposed by the People's Gas Light & Coke Co., pending hearing of testimony by experts for the commission and the city as to whether the new rates will be to the best interests of the public.

The gas company announced rates 3½ per cent lower for domestic purposes and 22 per cent lower for heating. The new rates were made possible, the company announced, because of the completion of the pipe lines carrying natural gas into Chicago. The natural gas will be mixed with the manufactured gas.

The first public hearing by the commerce commission has been set for September 15. The commission's engineers and rate experts have been studying the gas rates for some time.

GAS APPLIANCE SALE DRIVE BEING PLANNED

A program for more aggressive development and distribution of gas appliances is expected to be evolved at the annual meeting of the manufacturers' section of the American Gas Association in Detroit on September 17 and 18. Both manufacturing companies and gas utilities are being urged to join this co-operative movement to assure a continued increase in the annual volume of gas consumption of the nation, and to prepare for new markets being reached now through natural gas developments.

The entire utility industry has been strongly impressed by the success of electric refrigerator manufacturers, in co-operation with the electric light and power companies, in stimulating the sale of their product during the current depression.

"We confidently say that a new era will dawn for the manufacturers as a result of the new co-operative program that will be detailed for you at our Detroit sessions," the official convention call states.

The broad outlines of the co-operative plan are to be related to the meeting on September 17 by Clifford E. Paige, president of the American Gas Association. He will discuss the relations between the association and the appliance manufacturer, and the manner in which they can work together more closely for mutual advantage. Alexander Forward, managing director of the association, will describe the development of association activities over the past year, and he will be followed by R. W. Gallagher, vice president of the association, who will talk on "The Co-ordination of Our Industry."

The meeting will also give serious consideration to the question of financing sales of gas appliances. E. R. Acker, chairman of the commercial section of the association, will outline plans for utility financing of dealer sales of such appliances as a means for encouraging their purchase by the consuming public.

A separate session will be held by the range division on September 18. In view of the strong efforts being put forward by electric utilities in various parts of the country to spread the use of the electric cooking range, strong efforts to maintain and improve the satisfaction given by gas ranges are regarded as necessary. As one method of improving such appliances, a committee has been at work on the cross licensing of patents, and it will report the results of its activity to the division. Other reports to be presented for discussion and adoption are those on standards of practice and safety ordinances. Similar sessions will be held on water and space heaters.

SHELBY GAS DECISION IS TO BE APPEALED

CASPER, Wyo., Sept. 5.—The Montana Public Utilities Commission will be advised by its attorney, Francis A. Silver, to appeal from the decision of the District Court for the District of Montana holding that the commission's order in the Shelby gas case is invalid, Mr. Silver has announced.

A three-judge statutory court, voting 2 to 1, held that the commission was not justified in fixing minimum rates to be charged in Shelby by the Great Northern Utilities Co., which had established a low rate in competition with the Citizens Gas Co., the second gas utility in the field.

Judge George M. Borquin wrote the opinion, which was concurred in by Judge Charles N. Pray. Both jurists preside in the Montana District Court. Circuit Judge William H. Sawtelle, of San Francisco, dissented.

"Whether regulation is reasonable always depends upon circumstances," said the majority opinion. "There may be, and it is assumed there are, good and valid reasons to justify fixing minimum rates, and when the field affords room for their application with resultant fair returns to all occupying it, such rates and the order are reasonable and valid.

"But when the field is limited, and reasonable rates will afford fair returns to but one, and two occupy it, the law of self-preservation and survival of the fittest invokes the right of competition to the last extremity; and any minimum rate and order which would prevent the struggle and condemn the rivals to the ordeal of slow starvation is unreasonable and void. In such circumstances the State must prevent competition for patronage, and not merely competition in rates."

RATE BASED ON THERM TO BE INVESTIGATED

INDIANAPOLIS, Ind., Sept. 5.—The Indiana Public Service Commission has ordered an investigation of the reasonableness and lawfulness of the practice of public utilities in Indiana selling gas for any purpose on the therm basis.

(A therm is a measurement of the heating content of gas, equal to 100,000 British thermal units, by which gas generally is measured. A British thermal unit is the amount of heat required to raise 1 cubic centimeter of water 1° F.)

Schedules based upon the therm basis have been made effective in nearly 100 cities and towns in Indiana, according to the order, and numerous complaints have been received by the commission.

"It appearing," said the commission's order, "that the rights and interests of the public may be injuriously affected by such therm basis," the investigation was ordered. The order was directed to 10 gas service companies.

THREE BIG PRODUCING STATES

Since 1920 the output of natural gas in the three largest producing states, Texas, Oklahoma and California, has increased approximately four times, while the number of users has multiplied more than six times. The production of the three states in 1930 was 1,015,000,000,000 feet, compared with 256,000,000,000 feet in 1920.

INDIANA MERGER

The Central Fuel Co. of Newcastle, Ind., and the Rushville Natural Gas Co. of Rushville, Ind., have been merged into the Eastern Indiana Gas Co., with headquarters in Newcastle, Ind.

PACIFIC COAST SALES FOR FIRST SIX MONTHS

LOS ANGELES, Calif., Sept. 5.—Increases in cubic foot sales of gas and in the number of customers served, but a decrease in the gross revenue from gas sold, are shown in a report of Pacific Coast Gas Association, for the six months ended June 30, 1931, in comparison with the corresponding period of 1930.

The report covers the operations of gas utilities in California, Arizona, Idaho, Nevada, Oregon, Washington and British Columbia.

In the half year just ended, cubic foot sales increased to 71,624,828,000 cubic feet, compared with 70,149,954,000 cubic feet in the like period last year, an increase of 1.6 per cent.

Customers increased by 35,056, or 2.2 per cent to 1,618,345 at June 30, 1931. Gross revenue showed a 4.2 per cent decrease to $39,551,596 in the first six months of 1931. This largely is attributable to lower rate schedules due to the introduction of natural gas in northern California.

FIRST GAS FIRED AIR CONDITIONING SYSTEM

DALLAS, Tex., Sept. 8.—Introducing the first gas-fired air conditioning system in the Southwest, the Dallas Gas Co. has installed a unit to control humidity in the new Dallas Gas Building, which was opened for business September 8.

Air will be conditioned and cooled in the summer by the method and will circulate in the main lobby and the display rooms at the rate of 20 feet per minute per person.

Moisture is removed from the air by filtering it through a bed of silica-gel. This bone-dry air is blended with ordinary air to attain proper humidity and then cooled to maintain proper indoor summer temperature. After silica-gel has become saturated with water vapor from the air, gas heat is applied to dry out the gel and it is again ready for use.

This is the first time a gas-fired cooling system has been used in the Southwest, and the gas company is introducing it as a forerunner of the time when many homes and buildings in the South will be cooled by this method.

COLUMBIA GAS BUYS OIL LAND

NEW YORK, Sept. 7.—Columbia Gas & Electric Corp. has contracted for the purchase of the oil and gas properties of Kentucky By-Products Coal Co. for $1,500,000. The purchase involves properties aggregating 31,739 acres, of which 19,859 acres of oil and gas rights are owned in fee and 11,880 acres are controlled by lease. The properties include 12 producing gas wells, and are located in Floyd, Marvin and Lawrence Counties, Kentucky, and Wayne County, West Virginia.

Columbia Gas & Electric has listed an additional $1,500,000 23-year 5 per cent debenture bonds on the New York Stock Exchange, the new bonds covering the purchase of the above properties.

SOUTHERN NATURAL GAS

Southern Natural Gas Corp. (subsidiary of Tri-Utilities Corp.) reports for seven months ended July 31, 1931, gross revenues of $1,749,887. After expenses, ordinary taxes, etc., balance was $946,856 before depreciation, federal taxes, interest and other charges. Interest requirements for the seven months' period amount to $621,145 on the $17,747,000 principal amount of corporation's first mortgage 6 per cent gold bonds outstanding on July 31, 1931.

Technical Questions Answered

BY CHARLES K. FRANCIS, PH.D., TECHNICAL EDITOR

This department of The Oil and Gas Journal is devoted to the manufacturing branches of the oil industry.

Those connected with the refining of crude petroleum, the manufacture of natural gasoline and closely allied industries are invited to submit their problems to Dr. C. K. Francis, technical editor. The department was created for the purpose of aiding managers, superintendents, engineers, chemists and all those engaged in the various phases of plant operation; also those connected with the marketing and utilization of petroleum products.

Questions should be submitted in as much detail as possible so as to assure a satisfactory answer.

All inquiries should be signed and if other than the given initials are to be used please indicate the desired letters.

Questions involving patented processes, intricate formulas, and calculations and estimates of costs, for obvious reasons, cannot be answered. The replies will appear on this page within a reasonable time.

STAINLESS OILS FOR TEXTILE MILLS

What grade of lubricating oil is suitable for use in textile mills, especially on the small parts of knitters, etc.?—A. W.

It is important that any oil used for lubricating small parts, such as spinning frames and knitting machines, shall not impart a stain which will remain on the finished material. The textile operators have found it impracticable to prevent small quantities of oil from reaching the yarn or cloth so any lubricating oil used must respond to the washing process, one of the steps in the finishing of the goods.

The U. S. Bureau of Standards made an extended study of this problem and finally announced specifications as follows:

1. Viscosity at 100° F.—not less than 75 nor more than 100, Saybolt.
2. Flashpoint—not less than 300° F.
3. Corrosion test—copper strip test negative at three hours at 212° F.
4. The neutralization number shall not exceed 0.10.
5. Acid test—to 10 cc. of the oil in a test tube add 5 cc. C.P. sulphuric acid, 1.84 specific gravity. The liquids shall remain colorless.

Adoption of a lubricating oil meeting the above specifications has been recommended by the National Association of Hosiery & Underwear Manufacturers to all knitting mills. The viscosity of this oil, it is pointed out, may be too low for large bearings, in which event an oil having a higher viscosity, but meeting the other requirements of the specifications, is recommended.

Fabrics treated with a lubricant of this quality were exposed to light tests with satisfactory results.

Following these light tests a typical mill scour was then given the fabrics, consisting of 45 minutes in a boiling hot solution containing 5 per cent olive oil soap and 2 per cent soda ash. The test fabrics were then dyed with Niagara Sky Blue 6B. The scoured and dyed samples, which had been treated with straight mineral oil, were quite free from stains and were uniformly dyed.

CLASSIFICATION AND USE LUBRICATING OILS AND GREASES

I wish to obtain information covering the classification and application of lubricating oils and greases. This knowledge is desired in connection with the marketing of these products. How is information covering the industrial uses for these obtained?—R. F. K.

In a general and very superficial way it is possible to classify lubricants and to indicate the special use to which each grade is adapted. One commercial classification for the lubricating oils is: Red oils, pale oils, viscous and nonviscous neutrals, steam-refined and filtered cylinder oils, bright stocks and black oils.

Red oils are distilled from the crude petroleum with or without steam, usually they are acid treated and filtered. These oils constitute the greater part of the light, medium and heavy oils used for general purposes. They are liable to emulsify when used in circulating systems. Pale oils are commonly distilled from petroleum with steam, acid treated, and well filtered. They are light to medium in viscosity and suitable for use on high speed bearings, shaftings such as used in textile machinery, internal combustion engines. The better grades are especially adapted for use in circulating systems, such as steam turbines, because they are nonemulsifying.

Neutral oils are steam and fire stilled, with the wax content considerably reduced. They may be both acid treated and filtered or simply filtered. The viscosity is low to medium. These oils are suitable for self-oiling systems and for similar purposes as those indicated for the pale oils. They are extensively used for blending with the heavier oils to make the numerous grades required by the market. The viscous neutrals are those with a Saybolt Universal viscosity between 125 and 350 at 100° F.; flash above 350° F.; and light to dark color, that is usually darker than the nonviscous oils. The nonviscous neutrals usually flash below 350° F., viscosity below 125 seconds, and light in color.

Steam refined cylinder stocks represent the residue after the removal of the lighter portions from the crude oil, the reduction being completed in the presence of steam. The extent to which the oil is distilled is controlled by the flashpoint, which is between 450° and 500° F. The cheaper grades of oils for lubricating heavy machinery are made from this stock. The filtered cylinder stocks are improved in color by filtering through fuller's earth. This oil is often blended with the other lubricating oils for the heavy and extra heavy grades. Some of these oils are treated with acid before filtering.

Bright stocks represent oils made by a high degree of refining from the raw cylinder stock. All of the grades mentioned above may contain a large quantity of wax, especially the cylinder stocks, and consequently have a high pourpoint. This pourpoint was originally reduced by allowing the oil to remain in storage over the winter, permitting a part of the wax to separate by settling. This process was improved by first diluting the oil with naphtha, then cooling and settling, and recovering the oil by distillation. Bright stocks are made in the same way except that the diluted oil is cooled by artificial means and the wax removed by means of centrifugal force. This wax-free oil solution is then distilled to remove the naphtha and the oil brought back to flash specifications. Bright stock is used as an extra heavy oil or for blending with the lighter oils to make any desired grade. The motor oils and airplane oils usually contain a large proportion of this oil.

Black oils originate in the residues from the distillation of lubricating stocks and from the heavier crude oils such as those containing a large percentage of asphaltic materials. They are used for lubricating heavy machinery, such as used in mines, crushers, etc.

The trade classifies lubricating oils on viscosity, color and pourpoint.

Greases are adapted for use where a supply of oil cannot be maintained between the bearing surfaces. The essential lubricating agent in a grease is in most cases lubricating oil. The solid is some kind of soap or a wax residue. Greases, like the lubricating oils, vary in composition, so the selection of a suitable grease for a specific service will depend upon a knowledge of the greases available and their action when used under similar conditions.

Our technical knowledge covering the industrial uses of the lubricating oils and greases is gathered by experience. Some of the books that may help include: Practice of Lubrication by Thomsen, McGraw-Hill Book Co., New York; Power Plant Lubrication by Osborne, same publishers; Lubricating Greases by Klemgard, Chemical Catalog Co., New York.

BOUNCING PIN INDICATOR FOR DETERMINING KNOCK

What is the principle made use of in the bouncing pin indicator as devised for recording the intensity of detonation in an internal combustion engine, and what is the general construction of this instrument? Does the bouncing pin receive a direct impulse from the highly compressed and vibrating products of combustion or is it first transmitted through the walls of the cylinder? Where would I obtain a condensed description of this?—A. M. M.

The original testing apparatus for determining the antiknock value of gasoline was a slightly modified Delco light engine, the important attachment being the Midgley bouncing pin indicator which, in conjunction with an electric cell, permitted a current of electricity to flow into a tube containing acidulated water; the volume of gas thus generated was considered an indication of the knocking intensity of the gasoline used for the fuel. The present Ethyl knock-testing apparatus has been developed from this engine.

Briefly describing some of the essential parts: The engine is of single cylinder fixed compression ratio (7.75 to 1), overhead valve, evaporative cooled type. Bore is 2½ inches, stroke 4⅝, and the piston displacement 22.71 cubic inches. The cylinder and cylinder head are well cooled. Valves, spark plug, bouncing pin opening and both intake and exhaust ports are entirely surrounded by the cooling liquid. The carburetor is of the single jet, single choke horizontal type, with a three-way cock permitting fuel to be fed through either one of the two float bowls. Vent wells on each side of this cock allow the vapor to be separated from the fuel before it enters the carburetor jet. The fuel cups mounted directly on the float bowl covers are designed to hold two 8-ounce bottles, one for the sample and the other for the reference fuel.

The bouncing pin device, consisting of a small cylinder and piston is screwed into the head of the cylinder flush with the inside of the combustion chamber. In the original apparatus this piston was held in place by means of a calibrated spring. A pin was set on the top of the piston which the explosions of the air-fuel mixture caused to bounce and thus close the contact of an electrical circuit. In the improved engine this spring has been replaced with a diaphragm. The volume of current flowing through this circuit is the means for determining the knock rating. High detonation causes frequent closing of the circuit, because of the excessive bouncing of the pin, while the fuels of the nondetonating class burn quietly, permitting but little current to flow.

The accurate measurement of the knocking tendency is made either by determining the volume of the gas formed by the decomposition of acidulated water by the electric current, or by means of a knock intensity meter. This meter indicates continuously the average intensity of detonation by means of a millivoltmeter needle. The bouncing pin current flows through a resistance wire placed in such relation to a thermocouple of definite size that a continuous nonfluctuating indication of temperature is obtained which is proportional to the square of the average knock intensity as measured by electrolysis.

The method or procedure for rating a fuel is to match it by trial and error with a blend of benzol and the zero reference straightrun gasoline blend; the per cent by volume of benzol in the blend matching the sample is termed the benzol equivalent of the fuel. This may be converted to an octane number by means of a table or curve, or by direct comparison on the apparatus with known octane-heptane mixtures.

Numerous descriptions of the Midgley bouncing pin method for recording fuel detonation have been published; see—The Oil and Gas Journal, March 6, 1930, page 190, and April 30, 1931, page 22; also S.A.E. Journal, February, 1927, page 214, and March, 1927, page 405.

SPECIFIC HEAT DATA

I would like to know where I could get some specific heat data on petroleum gases and oils above the critical temperatures and pressure?—W. C. E.

The references following contain data covering the determination of specific heats of petroleum substances. Some of the formulas may permit one to estimate several indicated properties above critical points.

Fortsch and Whitman, Ind. Eng. Chem., Vol 18, 795, 1926.

Fortsch and Wilson, Ibid., 16, 789, 1924. Bailey and Edwards, Ibid., 12, 891, 1920. Zeitfuchs, Ibid., 18, 791, 1926. International Critical Tables. Eckart, Mech. Eng., 47, 535, 1925.

When the specific gravity of an oil is known at 60° F., the true specific heat may be estimated, according to Fortsch & Whitman, by means of the formula:

$$C = \frac{(t+670)\,(2.10 - \text{sp.gr.})}{2{,}030}$$

where C = the specific heat; t = the temperature in ° F.; sp.gr. = the specific gravity of the oil at 60° F.

ALCOTATE FOR DENATURING ALCOHOL

Can you tell me what is alcotate which is being used here for denaturing grain alcohol and sold to licensed denaturers of grain alcohol?—L. E.

Alcotate is a petroleum product made in California and approved by the U. S. Bureau of Industrial Alcohol which meets the following specifications:

Gravity—Specific 0.850 or about 35° A.P.I., min.
Sulphur—4.5 per cent min.
Distillation, max. temperatures—
  20 per cent recovered at 347° F.
  50 per cent recovered at 383° F.
  90 per cent recovered at 473° F.
Solubility—Equal volume of ethyl alcohol.
Turbidity test—An alcoholic solution containing 1.5 per cent shall require at least 8 cc. distilled water to equal the turbidity of 1.5 per cent water solution of lead acetate at 77° F.

An extended description of these specifications may be found in The Oil and Gas Journal, February 19, 1931, page 82.

Titusville "Acme" 12x12 Type E Timken-equipped drilling engine used by Pierce Drilling Company, Oklahoma City.

The TITUSVILLE "ACME" 12 x 12 steam drilling engine is equipped with Timken Bearings on the main shaft and crank pins for greater dependability and longer life under continuous operation. With friction eliminated at these vital points, the operation of the engine is smoother under all loads. Vibration is reduced; shaft alignment is preserved; power waste is prevented; lubricant is saved. Specify Timkens.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

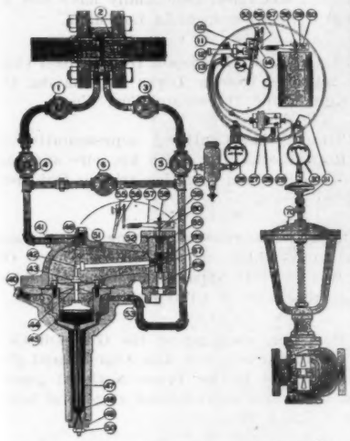
TIMKEN *Tapered Roller* **BEARINGS**

Oil Industry Equipment and Supplies

TAGLIABUE INTRODUCES LINE OF FLOW DEVICES

The C. J. Tagliabue Manufacturing Co., of Brooklyn, N. Y., announces a new line of flow instruments including flow recorder-controllers for liquids, flow meters and orifice meters for gases, flow recorder-controllers for gases and liquid level recorder-controllers.

The rate of flow in pipe lines follows the squareroot of the differential pressure created at the orifice. There has been need for flow controllers that will



do more than simply record differential pressure with the use of progressive charts for the rate of flow. With the so-called square chart the graduation becomes progressively wider from center to outside. Thus, it is apparent that the accuracy, readability and controllability will be less and less as the rate of flow decreases. Although an instrument may function satisfactorily within its allowable tolerance at the higher rates of flow, it is particularly important that inaccuracies do not increase at medium and low rates of flow to the same extent that the graduations are compressed.

Control work, particularly, demands accuracy for any rate of flow and this can be accomplished by the use of a chart reading directly in rate of flow but uniformly graduated. This uniformity of graduations is made possible by the special design of the differential pressure gauge, one leg of the manometer being made progressively smaller in diameter so that the curved cross-section of this leg produces uniform rise and fall of the mercury in the other leg and uniform motion of the float per increment of change in rate of flow.

Among other features is the method whereby a pressure-tight bearing is eliminated in transmitting the float movement from inside of the manometer pressure-chamber, which is at pipe line pressure, to the recording pen outside, which is under atmospheric pressure, without friction or leakage.

The lever 51, which transmits the vertical movement of the float, engages yoke 67. This yoke is supported in position by two bellows 65 and 68, one at each end. These bellows being identical are equally affected by pressure changes inside or outside the pressure chamber and balance each other so that such pressure changes can cause no movement of this yoke. At the same time they allow the yoke to move without any restriction up or down as the float falls and rises. The yoke extends through the inside of the upper bellow 65, enabling its motion to be communicated to the pen leverage system by pin 59. This construction eliminates friction and avoids any opening through the pressure chamber which is sealed from the atmosphere. A mercury blowout check is provided by the top of float 45 and the bottom of disc 43 which closes passage 44 at the limits of normal float travel. It acts automatically to prevent blowing out of the mercury in the differential pressure gauge should there be a sudden surge or an accidental disconnection of one of the orifice pressure lines.

The balancing control feature is incorporated as standard equipment and insures full-floating action of the diaphragm valve and entirely eliminates over-control tendencies and "hunting." This development is said to afford 100 per cent automatic control by its ability to maintain the diaphragm valve opening at the required demand point over the full range of valve opening. It also permits the operator to change the setting point anywhere within the range of the controller without fear that the controller will "go into a swing." The balancing feature enables the controller quickly and smoothly to change the diaphragm valve opening to the new demand point, and hold it there without "hunting."

The Tagliabue Co. will send upon request its catalog No. 1,020 describing the line of new Tag flow instruments.

NOTES ABOUT TRADE LITERATURE

"Arc Welding in Industry" and "General Electric Arc Welders" are the titles of two booklets recently published by the General Electric Co., Schenectady, N. Y. The company also is mailing two additions for insertion in the loose-leaf catalog, one on its magnetic switch and one on synchronous motors.

Discussions of piston checks on feed lines, alloy castings for heat, need of taking pains with forgings and testing of "tired" materials are contained in the current number of Valve Values, published by the Edward Valve & Manufacturing Co., East Chicago, Ind.

"Special Protective Coatings for Industry," is the title of a new booklet issued by the Wailes Dove-Hermiston Corp., manufacturer of anticorrosive coatings and specialists in the protection of underground and underwater surfaces and other structures subject to extreme corrosive influences. The book presents under one cover essential data for the guidance of engineers and others who may obtain copies by writing to the company's nearest district office or to the general offices of the Wailes Dove-Hermiston Corp., 17 Battery Place, New York.

A 100-page booklet issued by the Earle Gear & Machine Co., Philadelphia, Pa., describes and illustrates the company's products and contains engineering information of value. Copies may be obtained on request.

The American Lava Corp., Chattanooga, Tenn., maker of insulating and heat-resisting parts for gas appliances, has prepared an interesting booklet of 24 pages on "Lava and Magnesia, a Specialty Insulation."

A bulletin describing Stacey-Klonne dry gas holders has been issued by Stacey Brothers Gas Construction, a division of the International-Stacey Corp. of California, Subway Terminal Building, Los Angeles.

The New Houghton Line, breezy successor to Houghton's Black and White, describes itself as "a monthly magazine for people who like to do their own thinking." It is sent free to executives of industrial corporations. To others it is 10 cents a copy, and worth it. It is published by E. F. Houghton & Co., North Philadelphia, Pa., manufacturers of oils and leathers.

NO. 2 ZO MOTOR STARTER

The Electric Controller & Manufacturing Co., of Cleveland, Ohio, has announced the No. 2 Type ZO across-the-line motor starter, a companion to the No. 1 ZO starter. It is a self-contained unit, totally enclosed in a heavy (16-gauge) pressed steel case with oil-immersed main and control circuit contacts and vapor-proof overload relays. The entire unit is of compact design requiring little mounting space and is of dust-tight construction. Introduction of this starter provides two standard sizes of oil-immersed, vapor-proof, wall-mounted, compact motor starters. These features make the No. 2 Type ZO motor starter safe for operation in adverse atmospheric conditions. The starter can be mounted right out in the plant alongside the motor it controls and get a vapor-proof, dust-tight and shock-proof installation.

ADVANCED FEATURES IN RECORDING INSTRUMENT

The new Neilan pressure-recording controller announced by the Neilan Co., Ltd., 641 Santa Fe Avenue, Los Angeles, Calif., embodies advanced features, including large operating air or gas supply reservoir, Neilan compound pilot valve, Neilan Rota-port synchronizer, separate control element, double-spring safety shock absorber, convenient micrometer setting adjustment, individual recording element and Neilan improved ball-bearing diaphgram control valve.

The instrument is entirely self-contained and requires the installation of no additional equipment to complete its operation. An operating air or gas reducing valve and a safety relief valve are built into the instrument. There are no loose parts to be lost.

Maintenance and replacements have been simplified by unit construction. Spare replacement units may be carried and quickly installed without removing the instrument from service. Neilan instruments are said by the manufacturer to be so simple in design that they may be easily adjusted or repaired by plant operators.

A duralumin case combines the strength of steel with the lightness and corrosion-resistance of aluminum. Corrosion is further prevented by machining all moving parts from solid Nirosta KA2 stainless steel bar stock.

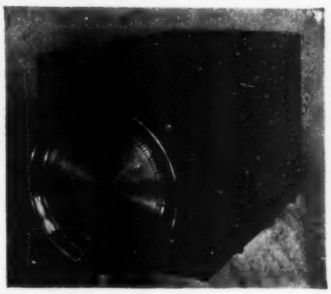
The control or pilot valve is a development of the principle embodied in the Neilan remote control pilot, of which there are some 2,000 in service throughout the world.

I-R "SPEED TRAILER"

The "speed trailer," a portable air compressor designed for high-speed towing, is a new addition to the Ingersoll-Rand line. It consists of a standard 5½ x5-inch gasoline-engine-driven compressor mounted on two rubber-tired steel wheels. Because of the low center gravity, it can be towed behind a truck on a good roadway at 30 to 35 miles per hour. When detached, it can be moved about by one man.

PRESSURE READINGS AT DISTANT POINTS SHOWN

A multi-contact making pressure gauge has been developed by the Westinghouse Electric & Manufacturing Co. for use with supervisory control system to indicate certain pressure readings at a remote point. It was developed for use with a pipe line pumping station to give remote indications of intake and discharge pressures. Ten adjustable contacts are placed at predetermined intervals over the scale



of the pressure gauge. When the pressure changes sufficiently to make a new contact a code of impulses is sent over the supervisory control wires to indicate the change to the dispatcher. Thus all changes are automatically sent through without the use of extra live wires.

In general the device consists of motor-driven contacts which are made to follow the pressure gauge. To accomplish this the shaft of the pressure gauge is extended through to the rear and a contact mounted on it which will follow the change in pressure. As the pressure tends to change up or down it strikes another contact which is connected directly to a motor-driven shaft. This is connected directly to another motor-driven shaft which rotates it in a direction to cause the contact again to open. Thus the motor-driven contacts will move or rotate in response to variations in pressure as indicated by the pressure gauge. The contact carried along with the pointer has no mechanical connection to the rest of the device.

The indicating contacts have a capacity of 5 amperes at 125 volts. The case is made practically dustproof and for table or similar mounting. The device usually is made for storage battery operation so that readings of pressure will be accurate even though the a.-c. supply to the pumps is interrupted.

WAUKESHA OFFERS SMALL FOUR-CYLINDER ENGINES

The Waukesha Motor Co., Waukesha, Wis., manufacturer of heavy-duty internal combustion engines, has entered a new field in the industrial engine market, announcing a series of two small four-cylinder engines of 10 to 20 horsepower size. These smallest Waukesha engines have the standard Ricardo combustion chamber, short, stiff crankshaft supported by three unusually large bronze-backed replaceable bearings, full-pressure oiling, built-in governor and detachable flywheel housing. It is possible to install a full series type oil filter, complete electric starting and lighting system, three-point suspension and either battery or magneto ignition.

The oil is distributed by a positively driven gear pump submerged in the oil reservoir and surrounded by the Waukesha patented oil-level equalizer. This feature is designed to insure a positive supply of oil under full pressure at all levels and temperatures.

Personal Paragraphs About Oil Men

V. C. Fuller, purchasing agent, Gypsy Oil Company, and family have spent a week in the Ozarks on vacation.

* * *

R. H. Bartlett, president of the Union Wire Rope Corporation, has returned from a vacation trip to his old home at Cuba, N. Y.

* * *

Frederick D. Anderson, of the Ohio Oil Company, has been elected secretary and treasurer of the California Oil Producers Sales Agency.

* * *

D. G. Eaton, assistant buyer in the Gypsy Oil Company purchasing department, and his family are spending a vacation in Illinois.

* * *

R. A. Broomfield, Jr., and William C. Whaley were elected vice presidents of the Barnsdall Oil Company of California on August 26.

* * *

Harry Bruner of San Antonio, Tex., formerly of Los Angeles, who has been very ill in a San Antonio hospital, has considerably improved and is able to see visitors.

* * *

M. E. Chapman, with the Gypsy Oil Company, Tulsa, has recently returned from a vacation trip in Colorado where he spent his time visiting old mining camps and fishing.

* * *

K. B. Yost, Longview, and Miss Neva McCain of Dexter, Tex., were married at the home of the bride's parents at the latter place on September 3 and are spending their honeymoon in San Antonio and other points in South Texas.

* * *

J. R. Pemberton, chief geologist of the Petroleum Securities Company, paid a flying visit to the middle dome at Kettleman Hills, where that company is drilling a deep Temblor test, but returned to his Los Angeles office a few days ago.

* * *

Pat Lewis, president of the Resistcor Engineering Corporation, Tulsa, and F. M. McManus, Dyke Wiley and Carl Kruepper, president, treasurer and plant superintendent respectively of the Muskogee Iron Works, Muskogee, have been on a fishing trip near Creede, Colo.

* * *

Hugh Russell, formerly assistant to Chief Geologist Fred Bush, of the Sinclair Oil & Gas Company at Tulsa, has been transferred to Shawnee, Okla., where he will be district geologist for the Greater Seminole area. Mr. Russell has been connected with the company since 1926.

* * *

E. H. Salrin, of New York, president of the Tidal Oil Company, has been inspecting properties of the company in the East Texas district, and visiting the company's district office in Fort Worth. While in Fort Worth Mr. Salrin was the guest of James R. Gahan, vice president of the company in charge of Texas and New Mexico operations.

* * *

R. G. Bechtel is now located at San Angelo, Tex., in charge of the Stanolind Oil & Gas Company's production in that district. He recently moved from Willow Springs in the East Texas district. A. C. Bace, formerly district geologist for the company at San Angelo, has been transferred to Tulsa. Hal Ackers, formerly located at Midland, is now in the San Angelo offices.

* * *

George H. Shelton, geologist, is in charge of the recently consolidated offices of the Dixie Oil Company and Southern Crude Oil Purchasing Company at San Antonio, Tex., under the new name of Stanolind Oil & Gas Company. Robert Durkee is assistant geologist, L. C. Roberts, who was geologist in charge of the office of the Southern Crude Oil Purchasing Company having been transferred to Fort Worth. H. W. Milton is head of the land department of the San Antonio office and L. A. Cook is scout.

Jay Walker of the National Tank Company, Tulsa, has gone to Indianapolis and Philadelphia.

* * *

F. F. Corby, representative of the tubular goods department of Jones & Laughlin Steel Corporation, Pittsburgh, Pa., was a Tulsa visitor last week.

* * *

G. A. Tompson, purchasing agent of the Empire Companies, Bartlesville, and family are spending a vacation on the South Fork of the Rio Grande River in Colorado.

* * *

L. E. Wallace, assistant manager pipe sales division, Youngstown Sheet & Tube Company, and J. C. Siegel, general superintendent of tube mills were in Tulsa last week.

* * *

R. L. Hall, export manager for the Richfield Oil Company of California, has resigned after being with that company for a number of years, to engage in private practice.

* * *

Russell S. Knappen, assistant to the executive, Gypsy Oil Company, Tulsa, is spending his vacation in Wyoming and Colorado visiting in Jackson Hole country and Estes Park.

* * *

Dr. Raymond C. Moore, of Lawrence, Kans., and state geologist, is reported to be ill at St. Luke's Hospital in Kansas City, Mo. Doctor Moore's illness prevented him from attending the Kansas Geological Society's field trip to the Ouachita and Washita areas and other districts of Oklahoma and Arkansas, which was held last week.

Men of the Industry

Rush M. Blodget

Rush M. Blodget, just elected general manager of the California Oil Producers Sales Agency, was born December 3, 1881. He was educated in the public schools of Kern County, California, and is a graduate of Bakersfield High School and Stanford University, class of 1907, with L.L. B. degree. He practiced law continuously from 1907 to date, specializing in the past 15 years on matters pertaining to the oil industry. He has been city attorney of Huntington Beach and of Venice.

In 1922 he was made general counsel of the George F. Getty oil interests in California, New Mexico, Oklahoma and Texas, and in 1920 was made vice president of George F. Getty, Inc., and its affiliated companies.

Mr. Blodget is married, has four sons, and is a resident of Santa Monica, Calif. He is a member of the Los Angeles Athletic Club and affiliated clubs; a Mason, and a member of the Sons of the Revolution. He has been a director of the Oil Producers Sales Agency since its incorporation. He was elected general manager of the agency on August 5, 1931.

George Massen, of the Kansas City office, Dearborn Chemical Company, has been calling on the trade in the Tulsa area.

* * *

H. H. Wilson, general salesman, Frick-Reid Supply Corporation, recently returned to Tulsa from an extended stay in East Texas.

* * *

James B. Duff, of the Guiberson Corporation, has returned to his Tulsa headquarters after spending several days at the home office in Dallas.

* * *

Joe Haygood, pipe line scout for the Humble Pipe Line Company, McCamey, and family have just returned from a vacation spent in Louisiana.

* * *

R. D. Gwynne, Jos. Greenspon Iron & Steel Company, has returned from a Texas trip, having visited Longview, Tyler, Dallas and Fort Worth.

* * *

J. L. Dittman, Mid-Continent representative of the Wall Rope Works, Inc., with his wife and son, left by automobile on a vacation trip to Ohio and other Eastern points.

* * *

Ralph Reed, Los Angeles, consulting engineer and for several years chief engineer of the Union Oil Company, was recently appointed a member of the Board of Registration of Civil Engineers.

* * *

Walter B. Pyron, manager of the Gulf Oil Corporation's California company, Los Angeles, and also a lieutenant colonel in the Texas National guard, has been on duty with his command at general headquarters at Kilgore, Tex.

* * *

L. D. Armstrong, secretary-treasurer of the Gaso Pump & Burner Manufacturing Company, has returned from a vacation trip to Colorado. T. P. Flanagan, president of the company, has gone to Galveston, Tex., on a pleasure trip.

* * *

R. M. Sands, recently elected vice president and general manager of the Petroleum Securities Company, after an association with the various Doheny interests since 1915, has been elected to the board of directors of the Union Bank & Trust Company of Los Angeles.

* * *

Walter C. Teagle, president of the Standard Oil Company (New Jersey), and other officials of that company who made up the group that conferred with officials of the Standard Oil Company of California on plans for merging the two companies, have returned to their offices in New York.

* * *

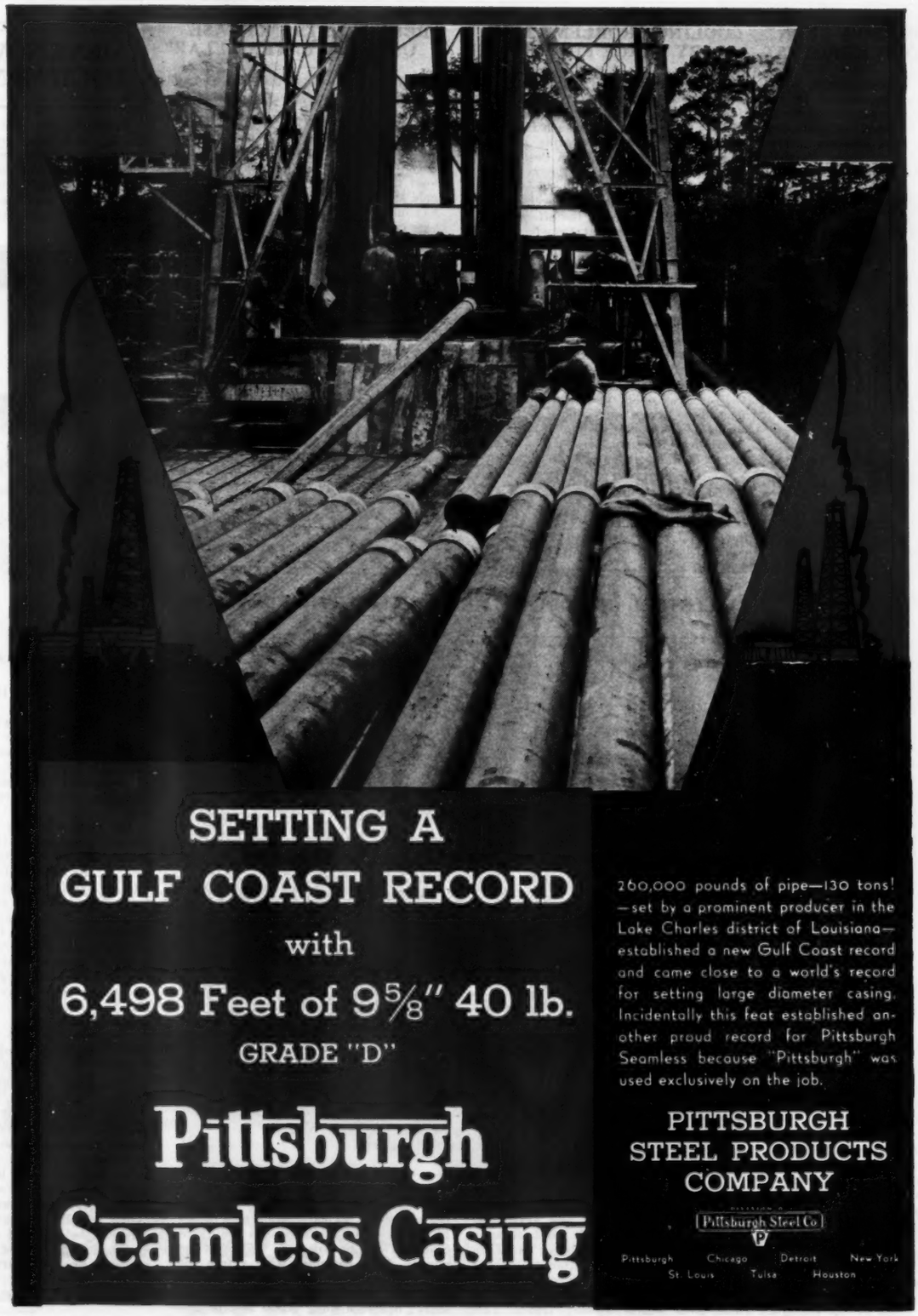
Frank M. Stauffer, petroleum engineer of the Panhandle Refining Company, Wichita Falls, Tex., made the principal talk at the monthly meeting of the Wichita Falls chapter of the American Petroleum Institute, division of production, on "Air and Gas Lift in the Production of Oil." The next meeting of the chapter will be held in the Wichita Club rooms September 29.

* * *

E. F. Howard, former chief accountant of International Petroleum Company, Ltd., with headquarters at Talara, Peru, has been appointed chief accountant of Royalite Oil Company, Ltd., with headquarters at Calgary, Canada. Officials and members of the International staff tendered Mr. Howard a farewell "champanada" at Talara on his departure for his new post.

* * *

A. W. Peake, Chicago, vice president of the Standard Oil Company of Indiana, and Frank O. Prior, Tulsa, president of the Stanolind Oil & Gas Company, and A. M. McCorkle, vice president of the latter company, in charge of the company's consolidated headquarters at Fort Worth, were in conference at Fort Worth adjusting details pertaining to the consolidation of Stanolind Oil & Gas Company activities in Texas under the jurisdiction of the Fort Worth office.



SETTING A
GULF COAST RECORD
with
6,498 Feet of 9⅝" 40 lb.
GRADE "D"

Pittsburgh
Seamless Casing

260,000 pounds of pipe—130 tons!—set by a prominent producer in the Lake Charles district of Louisiana—established a new Gulf Coast record and came close to a world's record for setting large diameter casing. Incidentally this feat established another proud record for Pittsburgh Seamless because "Pittsburgh" was used exclusively on the job.

PITTSBURGH
STEEL PRODUCTS
COMPANY

Pittsburgh Steel Co

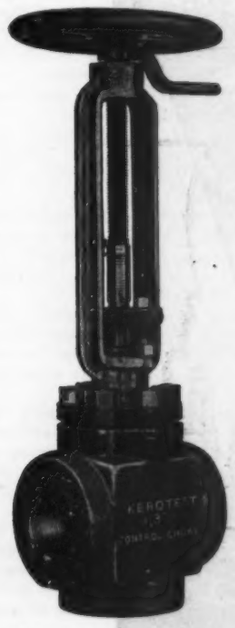
Pittsburgh Chicago Detroit New York
St. Louis Tulsa Houston

Oil Industry Equipment and Supplies

NEW TYPE OF FLOW BEAN ANNOUNCED BY KEROTEST

The Kerotest Manufacturing Co., Pittsburgh, Pa., has introduced to the oil fields a new design of control choke or flow bean to be used in prorating wells or in holding back pressure to prevent undue flow of sand from the well.

The device is made with forged steel



body and bonnets, cast steel yokes, alloy steel seams, hardened steel orifice bushings and needle controls. The design is strong and massive and is suitable for working pressures up to 3,000 pounds per square inch. It is regularly made in 2-inch, 3-inch, 4-inch and 6-inch sizes in both "tee" and "cross" types of bodies. The "cross" type body is said to have proven popular in the East Texas fields, where it is placed at the top of the well setting in direct line with the tubing. By this installation, it is possible to withdraw the needle control clear of the passageway and give a clear opening for the swab to pass through the control choke and fittings into the tubing. The "tee" type is most commonly employed on the outside lines or flow arms and is used as an angle valve or elbow permitting of flow from the horizontal to vertical position or vice versa.

This addition to the Kerotest line is regularly carried in stock by the company's field distributors—the Oil Well Supply Co. and the Norvell-Wilder Supply Co.—in all their branch stores.

FOR DEMONSTRATING NITRIDING

The Electric Furnace Co., of Salem, Ohio, which holds a furnace license from the Nitralloy Corp., 230 Park Avenue, New York, and the Commercial Steel Treating Co., 6100 Tireman Avenue, Detroit, Mich., has joined with Nitralloy in a program for the erection and operation of a demonstration nitriding center in Detroit. The furnace as installed is the latest design made by the Electric Furnace Co. It is of the electrically heated semicontinuous, horisontal type with three nitriding boxes provided with forced gas circulation. The furnace is so designed that it will be possible to make runs on different time cycles in the two smaller boxes simultaneously and to accommodate a variety of sizes and shapes.

COOLING PROBLEMS MET BY LARGE FIN SURFACE

The low heat conductivity of air, gases and vapors always has presented a cooling problem and heat exchangers and coolers used for handling such fluids have had to be bulky to provide sufficient heat transfer surface for a desired cooling effect. The design of the new G-Fin gas cooler, developed by the Griscom-Russell Co., is said to have overcome this difficulty by increasing the effective area on the side of the heat transfer surface which is presented to the hot gas or vapor. This is done by means of radial fins securely fastened to the outside of the tubes through which the cooling medium flows.

The hot fluid passes along the channels formed by these fins and the large total fin surface provides many times the heat-absorbing area of the same number and length of bare tubes. As a result, the G-Fin gas cooler is surprisingly compact for a given duty. This unit is described in a leaflet which may be obtained by addressing the Griscom-Russell Co., 285 Madison Avenue, New York.

The International Creosoting & Construction Co., Galveston, Tex., has issued a 16-page booklet, listing cities in the United States that use creosoted pine poles in business and residential sections.

ARBON HOISTS INCREASE USES OF "CATERPILLAR"

Paul Arbon & Co., Tulsa, have placed on the market two new hoists, 20C and 30C, particularly designed to increase the number of jobs which may be done with a caterpillar tractor.

By elimination of a number of the usual moving parts the hoists have been made smaller and stronger, having a pull in pounds as high as 25,000, with a cable capacity of 500 feet of five-eighths-inch line. The 20C is particularly adaptable to industrial plant operation and any operation that requires a small, flexible tractor. The 30C is designed as a heavy duty hoist, with extra power and flexibility. Both are suitable for oil field and pipe line work.

HUDSON BUYS AMERICAN VALVE

The American Valve Co., of Coxsackie, N. Y., has been purchased by the principals of the Hudson Brass Works, Inc., of Brooklyn, N. Y., maker of fittings and plumbing fixtures. The executive offices and a large general warehouse are established at 16 Nassau Street, Brooklyn. Theodore Guterman, the president, is in charge of the Brooklyn works. Samuel Gade, vice president, is in charge at the plant at Coxsackie.

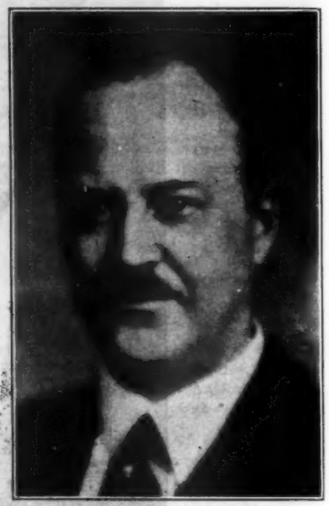
ALLSTEEL INTRODUCES NEW WELL-SERVICING WINCH

The Allsteel Products Manufacturing Co. of Wichita, Kans., has announced its new Model FS-35 well-servicing winch, mounted on skids or a 2-ton Spencer trailer, to be attached to the coupling of the tool car or truck or tractor, according to the condition of the roads over which it may travel. This winch, which is compact, fast and flexible, is adaptable for pulling rods and tubing, and for pulling casing in general well reclamation work on wells of a depth of 3,000 feet or under.

The Model FS-35, powered with Model AA-6000, 4-speed, heavy duty, Ford truck motor at 1,400 r.p.m. developing 32 horsepower will deliver 69.6 line feet per minute at 12,500 pounds pull in low. In high, with 1,945 pounds pull, this unit has a line speed of 475 feet per minute. It is equipped with a free rolling, steel tubular drum, Hyatt bearings mounted on 3¼-inch Nikrome steel shaft; drum capacity 3,500 feet of five-eighths-inch cable; brakes, double equalizing, self-energizing with a total of 960 square inches of actual braking area. The unit weighs 2,800 pounds complete with motor and is mounted on a special built Spencer trailer. It has been placed on the open market, so that it may be obtained from any jobber.

MEN KNOWN *in* THE EQUIPMENT FIELD

Formation of the Timken Michigan Co. has been completed with R. J. Goldie as president, to manufacture and sell lubricated and nonlubricated plug valves and leak clamps for use on cast iron bell and spigot pipe. The new company has taken over the patents and production of



R. J. Goldie

the screw-lift valve, which previously was manufactured by the Michigan Valve & Foundry Co. This valve is applicable in the control of fluids over a wide range of industrial processes where pipe line velocities, temperatures or pressures are high.

Mr. Goldie is also vice president and general manager of the Michigan Valve & Foundry Co. Fred Glover, who is president of the Timken-Detroit Axle Co., is vice president of the new organization. Serving as secretary and treasurer is W. C. Wood, secretary and treasurer of the Timken-Detroit Axle Co.

In addition to the officers named, the board of directors includes D. S. Devor, vice president in charge of manufacturing of Timken-Detroit Axle Co., and W. F. Rockwell, president of the Pittsburgh Equitable Meter Co.

AMSCO TYPE C PUMP

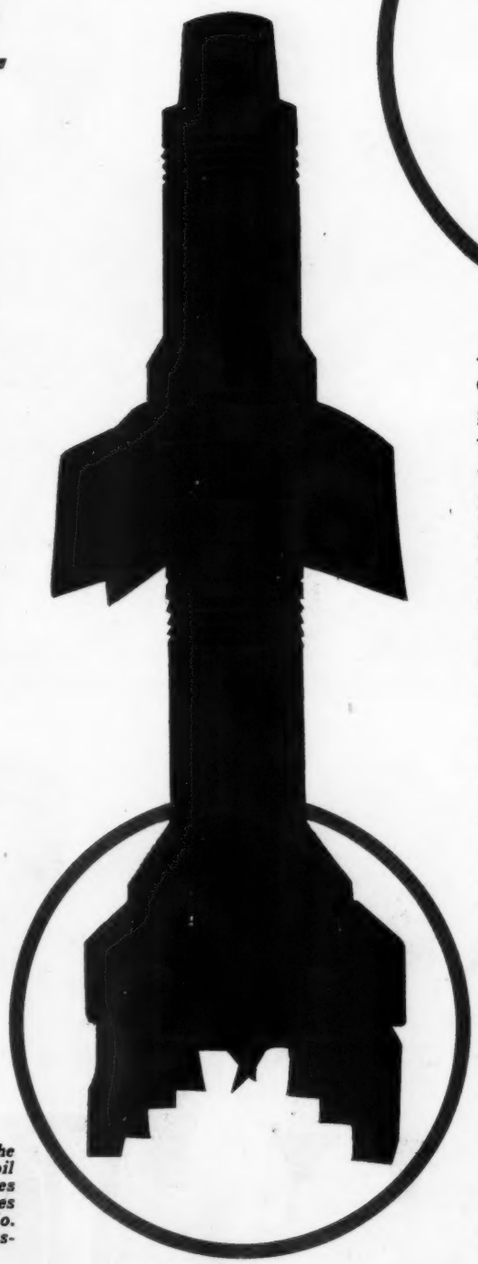
The American Manganese Steel Co., Chicago Heights, Ill., has added the new Type C to its line of abrasive materials handling pumps. This pump is made of Amsco manganese steel. Bearings are interchangeable in the field, either sleeve or antifriction types being available. Lubrication is required only on main bearings (except where outboard bearings are used). Impeller clearance and main bearings can be adjusted easily without dismantling. Thrust and radial shocks are absorbed by new bearing arrangement.

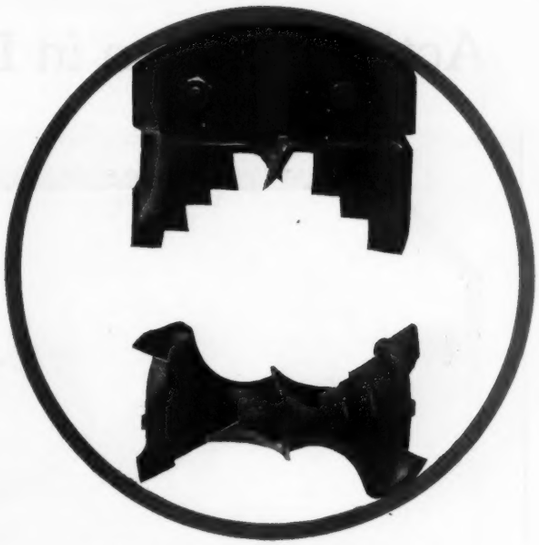
K. W. COLE CHICAGO MANAGER

The Pressed Steel Tank Co., Milwaukee, Wis., manufacturer of Hackney steel barrels, drums, tanks and cylinders, has made K. W. Cole manager of the Chicago office at 208 South La Salle Street. Mr. Cole was long connected with the American La France & Foamite Childs Corp. He studied engineering at Cornell.

TEAMWORK OF THE DIGGING TEETH

Accounts for the extraordinary efficiency of this world-famous drilling bit.





A close-up of the business end of this fast digging bit gives one a clearer idea of why it makes hole faster than ordinary bits.

Note the design of the teeth, their placement. Minute attention to the smallest detail of design and construction has resulted in a bit head that embodies every digging quality that can be built into a rotary drilling tool, and makes the most of every turn when in the hole.

No single tooth is burdened with too heavy a load. Each one is designed and placed so that it does its full share of digging individually, and in turn makes it easier for every other tooth to dig into and break down the formation. The result of this teamwork of the digging teeth is faster, more economical drilling.

The B-2 Bit and Model 5 Reamer is the most efficient combination for drilling oil wells. It drills straight, full-gauge holes faster and more economically. For holes from 10½" to 27" inclusive. Bulletin No. 8-A contains complete description, illustrations, specifications, etcetera.

GLOBE OIL TOOLS CO.

LOS NIETOS, CALIFORNIA.

Successors to
H. C. SMITH MANUFACTURING CO., Inc. WIEMAN-KAMMERER-WRIGHT CO., Inc.
NATIONAL TOOL & METALS, Inc.

BRANCHES:
Ventura, Calif. Kettleman Hills, Calif. Bakersfield, Calif. Longview, Texas
Oklahoma City, Oklahoma

Active Oil Men in Different Mid-Continent Fields

1—H. A. Renschler, production foreman; Ray Bumgardner, Jr., Ralph Bumgardner, head roustabout; J. H. Layman, roustabout; and Guy Tomlison, truck driver. Seated: J. W. Kisling, pumper, all of Prairie Oil & Gas Company, Sperry, Okla. 2—L. C. Peters, production superintendent, Humble Oil & Refining Company, Kilgore district, East Texas. 3—E. Ritter, superintendent, Magnolia Petroleum Company's White Eagle plant, Fort Worth, Tex. 4—W. H. Eyssen, independent operator; and J. N. Youmans, superintendent, Sinclair Refining Company, Tyler, Tex. 5—C. L. Clausel, Norvell-Wilder Supply Company; C. H. Otto, district gauger, Sinclair-Texas Pipe Line Company; John B. Rowland, general construction engineer, Sinclair Oil & Gas Company; H. Wallender and C. A. Brown, Sinclair-Texas Pipe Line Company. 6—R. W. Peters, Simms Oil Company, and E. L. Davenport, Shell Petroleum Corporation, East Texas.

WILDCAT OPERATIONS IN LOUISIANA-ARKANSAS

(Continued from Page 38)

LA SALLE PARISH

Gulf Ref. Co.'s No. 1 Tremont Lbr. Co., 668 ft. N, 632 ft. E, SW cor., Sec. 10-9n-2e ..... Set 12½-in. at 940 ft.

NATCHITOCHES PARISH

W. M. Coats' No. 1 Collins, 730 ft. N, 50 ft. E, C, Sec. 28-9-10 ..... Dry and abnd. 4,091 ft.

J. W. Cooper et al's No. 1 Cooper, NW SW, Sec. 35-11-10 ..... Dry and abnd. 3,156 ft.

Cooper et al's No. 2-A Cooper, C SE SE, Sec. 32-11-10.. S.D. 1,518 ft.

C. M. Talley et al's No. 1 C. M. Talley, 1,980 ft. W, 660 ft. S, NE cor. SE, Sec. 29-11-10..... Tested dry; S.D. 1,380 ft.

RAPIDES PARISH

Pelican Nat. Gas Co.'s No. 1 Long Bell Lbr. Co., 330 ft. N and E, SW cor., Sec. 3-1n-3w ..... Drlg. 2,350 ft.

RED RIVER PARISH

La. Oil Dev. Co.'s No. 2 La. Delta Pecan Co., 2,950 ft. S, 300 ft. E, NW cor., Sec. 27-13-11 ..... Spudded in; S.D. 50 ft.

Mack Jourden Co.'s No. 1 Lockett, 4,035 ft. S, 1,980 ft. E, NW cor. SW, Sec. 29, in Sec. 32-13-10..... S.D. 2,550 ft.

RICHLAND PARISH

Alto Gas Co.'s No. 2 Hunt, 660 ft. S and E, NW cor., Sec. 13-17-5 ..... Derrick.

National Gas Co.'s No. 1 Singletary, 1,980 ft. N, 660 ft. W, SE cor., Sec. 20-18n-7e ..... S.D. 2,493 ft.

Richland Operating Co.'s No. 1 Baremore, 730 ft. S, 950 ft. E, NW cor., Sec. 19-16n-7e ..... Set 6-in. 2,280 ft.

Southern Carbon Co.'s No. 1-B C. M. Noble, 2,966 ft. N, 1,525 ft. W, cor. Secs. 7, 8, 17 and 18, in Sec. 37-15-6. Location.

SABINE PARISH

Diffie & Barnett's No. 1 Lites (was J. W. Clark's), 330 ft. N, 330 ft. W, SE cor. SW NW, Sec. 34-8-11..... S.D. 105 ft.

R. L. Gay, tr.'s No. 1-A Long Bell Lbr. Co., 430 ft. S, 200 ft. W, NE cor. NW NW, Sec. 10-8-13 ..... Reaming to bottom 3,628 ft.

R. L. Gay, tr.'s No. 1 Bowman-Hicks, 330 ft. S and E, NW cor. SW SW, Sec. 18-7-13 ..... Rigging up.

Langbridge Oil Co.'s No. 1 Stephens, 330 ft. N and E, SW cor. SE NE, Sec. 17-9-11 ..... Coring 2,854 ft.

J. J. Keen, tr.'s No. 1 Belton (no check), Sec. 31-9-13.. Set 8-in. 1,590 ft.

A. H. Thames' No. 1 Edward est., 150 ft. NW SE cor. NE SE, Sec. 3-8-13 ..... S.D. for wtr. 1,200 ft.

TENSAS PARISH

U. A. Duvall et al's No. 1 Martin Jacob, 150 ft. S, 150 ft. W, NE cor., Sec. 1-14-11e ..... Began Aug. 26; set 10-in. at 200 ft.; drlg. 300 ft.

A. R. Willis et al's No. 1 Currey, 1,320 ft. S, 1,320 ft. E, NW cor., Sec. 39-11-12 ..... S.D. 3,545 ft.

UNION PARISH

Dan Brooks' No. 1 Odus Douglas, 330 ft. S and E, NW cor. NE SW, Sec. 9-22-2 ..... Drlg. 2,540 ft.; sandy shale.

ARKANSAS

CRICOT COUNTY

R. R. Smith's No. 1 Lytle, 660 ft. N, 660 ft. E, C, Sec. 21-28-3 ..... T.A. 2,925 ft.

COLUMBIA COUNTY

Kendall Oil Co.'s No. 1 Fullenweider, Rhea & Kitchen, Sec. 13-17-22 ..... S.D. 804 ft.

CLAY COUNTY

S. C. Jeffus' No. 1 Underwood, 510 ft. N, 350 ft. W, C, NW SE, Sec. 4-20-8 ..... S.D. 1,252 ft.

CLEVELAND COUNTY

Crum & Stillwell's No. 1 E. R. Bell, Sec. 10-10s-12w.... Rigged up and S.D.

CLEBURNE COUNTY

(Cable tools)

Donnelly-Craver et al's No. 1 Donophan Lbr. Co., SE cor. NW, Sec. 33-11-9 ..... S.D. 3,740 ft.

DALLAS COUNTY

E. C. Brewer's No. 1 W. E. Hillman, 330 ft. E, 40 ft. S, NW cor. SE NE, Sec. 20-10-13 ..... S.D.; W.O. 2,869 ft.

J. H. James, tr.'s No. 1 Fordyce Lbr. Co., 200 ft. S, 200 ft. E, NW cor. NE, Sec. 11-9-15 ..... S.D. funds 2,520 ft.

Zepp O. & G. Co.'s No. 2 Hillman, 450 ft. E, 340 ft. S, NW cor. SE NE, Sec. 10-20-13 ..... Drlg. hard sandy shale 1,583 ft.

DREW COUNTY

Co-Operative Dev. Co.'s No. 1 R. L. Hardy, SW cor. NE NE, Sec. 6-13-7 ..... Reaming to bottom 1,750 ft.

HOT SPRINGS COUNTY

Star Oil Co.'s No. 1 Cunningham, 285 ft. S, 285 ft. W, NE cor., Sec. 11-5-16 ..... S.D. 1,300 ft.

LINCOLN COUNTY

Lawrence Cook, tr.'s No. 1 McGhee Planting Co., 420 ft. S, 200 ft. W, NE cor. NE SW, Sec. 5-8-7 ..... Arrng. to lubricate D.S. 2,800 ft.

LITTLE RIVER COUNTY

Roberts Oil Co.'s No. 1 H. J. Russell, 330 ft. E, 330 ft. S, NW cor., Sec. 25-12-19 ..... Location.

LOGAN COUNTY

J. H. Flowers' No. 1 J. H. White, Sec. 13-6-26 ..... S.D; W.O. 3,570 ft.

MILLER COUNTY

W. E. Noel et al's No. 1 Dickson hrs., 1,980 ft. W, 660 ft. S, NE cor., Sec. 11-20-27 ..... S.D. 1,955 ft.

OUACHITA COUNTY

Bolin & McLeon's No. 1 L. D. Nealy, 150 ft. S, 150 ft. W, NE cor. SE SW, Sec. 25-16-15 ..... S.D. 2,036 ft.

Copenhaven et al's No. 2 Berg, C SE SE, Sec. 13-15-17.... Began Aug. 29; set 10-in. at 42 ft.

PIKE COUNTY

E. R. Henderson's No. 1 Tilyou, 660 ft. W, 500 ft. S, NE cor. NE SE, Sec. 26-8-14 ..... T.A. 2,909 ft.

E. R. Henderson's No. 1 J. L. Lee, 400 ft. S, 350 ft. E, NW cor. SW SE, Sec. 31-8-24 ..... S.D; W.O. 1,020 ft.

E. R. Henderson's No. 1 W. B. East, 200 ft. S, 150 ft. W, NE cor., Sec. 13-9-23 ..... Set 10-in. 284 ft.; S.D. 300 ft.

SCOTT COUNTY

Heavener O. & G. Co.'s No. 1 Riser, Sec. 36-4-26 ..... S.D; T.D. 1,436 ft.

Waldron O. & G. Co.'s No. 1 White, NE cor. SW NW, Sec. 17-3n-29 ..... S.D; waiting on csg. 1,860 ft.

SEBASTIAN COUNTY

Ozark Nat. Gas Co.'s No. 1 E. O. Girard, C NW NW, Sec. 34-8-30 ..... Reaming 2,132 ft.

UNION COUNTY

Chapman & Wilson's No. 1 A. H. Hadley, 330 ft. N, 330 ft. E, SW cor. NE SW, Sec. 3-18-13 ..... 600 ft. fluid 30% S.W. in hole; T.A. 3,570 ft.

WASHINGTON COUNTY

(Cable tools)

C. H. Willoughby's No. 1 Jones, Sec. 34-16-30 ..... S.D. for funds 1,795 ft.

YELL COUNTY

(Cable tools)

Tegmeir & Luckett's No. 1 Falcon, Sec. 26-7-31 ..... S.D. 5,710 ft.

EAST TEXAS

BOWIE COUNTY

Hindeman & Ball's No. 1 Merritt (was Maud-Redwater Oil Co.'s), 175 ft. N, 175 ft. E, SE cor. G. W. Hardidge 100-ac. tr. on Floyd Merritt tr. in Y. S. McKinney Sur. ..... S.D. 2,520 ft.

Logan & Elliott's No. 1 Smith 9,400 ft. S, 2,500 ft. W, NE cor. Chas. Lewis Sur. ..... Drlg. 1,370 ft.

Tarkington & Jones' No. 1 W. W. Whybark, 200 ft. S, 200 ft. W, SW cor. J. H. Dyer Sur. ..... S.D. 30 ft.

Lee Timberlake et al's No. 2 Tidwell, 2,310 ft. N, 655 ft. W, SE cor. T. M. Rice Sur. ..... S.D. 3,000 ft.

CAMP COUNTY

McDonald Bros.' No. 1 Tillery, 150 ft. E, 450 ft. S, NW cor. 127-ac. tr. in J. H. Murphy Sur. ..... S.D. 3,600 ft.

CASS COUNTY

E. K. Atkinson's No. 1 T. J. Wilson, 1,088 ft. S of N line, 2,376 ft. E of W line of H.R.S., J. R. McFarland Sur. ..... S.D. 3,021 ft.

Davis & Piggs' No. 1 Roy Brian, SW cor. Roy Bryan 88-ac. tr., Albert H. Latimer Sur. ..... S.D. 2,055 ft.

Everets Drlg. Co.'s No. 1 H. W. Whittington, 200 ft. S, and W, NE cor. 69-ac. Whittington tr., L. Strong Sur. ..... S.D. 3,922 ft; waiting on D.S.

Geo. McKamie's No. 1 R. E. Hall, 150 ft. N, 150 ft. W, SE cor. Hall's 117-ac. tr., H. Buckler Sur. ..... S.W; W.O. 4,080 ft.

C. E. Murdock's No. 1 First National Bank, Evans Watson Sur. ..... S.D. 4,390 ft.

John Nelson's No. 1 T. A. Irvin, 200 ft. S and E, NW cor. McNary Harris Sur. ..... S.D. 3,615 ft.

Olds & Smith's No. 1 Athey, 3,056 ft. W-E line, 856 ft. S-N line, J. C. Byers Sur. ..... S.D. 3,100 ft.

John C. Rogers' No. 1 I. E. Lanier, 573 ft. N, 879 ft. W, SE cor. Lanier 86 ac. in K. E. Welborn Sur. .... S.D. 2,280 ft.

John C. Rogers et als' No. 1 W. Q. Henderson, 3,100 ft. S, 3,100 ft. E, NW cor., Wm. Davis Sur. ..... S.D. 955 ft.

United North & South Co.'s No. 1-A Nickelberry, W. A. Irvin Sur., 300 ft. S and E, NW cor., Nickelberry 50-ac. tr. ..... Rigging up.

HARRISON COUNTY

Gholson et al's No. 1 Bivins Farm Co., on J. K. Bivins, Jr.'s 320-ac. tr., Thos. Toby Sur. ..... S.D. 2,759 ft.

Lloyd Oil Corp.'s No. 1 E. S. Timmons, 150 ft. ft. from N line to 250 ft. from E line of 105-ac. tr., Findley Sur. ..... Set 10-in. 240 ft; S.D; W.O.

O. O. Olford et al's No. 1 R. W. Bolding, 330 ft. E of SE cor. of J. B. Cullen's 161-ac. tr., 300 ft. N of N line of Mrs. C. L. Brown's 20-ac. tr., W. W. O. Stanfield Sur. ..... S.D. 2,702 ft.

O. H. Parkening's No. 1 T. J. Taylor, C, Blk. 32, W. H. Payne Sur. ..... S.D. 2,530 ft.

Ryan Consolidated Pet. Corp.'s No. 1 J. M. Fuhr, 1,300 ft. N of NW cor. T. J. Copelin Sur., 1,675 ft. SW at right angles to NW SE line of O'Neal Sur. ..... Derrick.

Thomas & Kinsey's No. 1 J. R. Watson, Thos. Iden Sur. Rigging up.

MARION COUNTY

Gist, Claunch & Dodson's No. 1 Miller, 1,470 ft. E line, 725 ft. N line, SW cor. H. Fulgran H.R. Sur. .... S.D. 300 ft.

Geo. Hindeman et al's No. 1 F. V. Lindsey, 2,500 ft. S, most northerly N line, 3,555 ft. E most easterly W line, Alexander Albright Sur. ..... S.D. 2,389 ft.

Hindeman & Rhondo's No. 1 McGaughey, 1,547 ft. W most northerly SW cor., 1,638 ft. N most northerly S line, W. J. Willis Sur. ..... S.D. 3,910 ft.

PANOLA COUNTY

Hoffer et al's No. 1 Cameron Lbr. Co., center 1,306-ac. tr. in W. M. A. LaGrove Sur. ..... Derrick.

Moses & Wallace's No. 1 Daniel, 600 ft. N and W lines, Mrs. Gerrell 100-ac. tr., SW cor. Isabel Hanks Sur... Spudded and S.D.

G. A. Davidson's No. 1 Latham, Wm. Rich Sur. ..... S.D.; changing to heavy rig 550 ft.

J. L. Nelson et al's No. 1 J. W. Williams, 300 ft. S, 700 ft. W, NE cor. Williams' 67-ac. tr. in Jas. Hanks Sur. ..... S.D. 1,500 ft; laying wtr. line.

United Gas Public Service Co.'s No. 11 Werner, 1,162 ft. N, 2,418 ft. W, SE cor. D. B. Lewis Sur. ..... Began Aug. 26; set 15½-in. at 383 ft.; drlg. 1,300 ft.

RED RIVER COUNTY

D. M. Buffington's No. 1 Hossler, E. Hughhart Sur. ... S.D. 2,795 ft.

Johnson Pet. Co.'s No. 2 Randolph, Edw. Dean Sur. .... S.D. 2,280 ft.

SHELBY COUNTY

I. M. Bradley's No. 1 Ashberry (no check), G. W. Mitchell Sur. ..... S.D. 3,280 ft.

E. L. Chapman's No. 1 Pickering Lbr. Co., C. E. Henry (headright) ..... Reaming to bottom 3,864 ft.

Chapperell Oil Co.'s No. 2 Holt, Matthew Moore Sur. .. S.D. 3,127 ft.

K. H. Francis' No. 1 John Mims, Mary Smith Sur. ... S.D., repairing rig 2,612 ft.

H. P. Glidden's No. 1 Pickering Lbr. Co., Jonas Harrison Sur., 300 ft. E of NW cor., 150 ft. S of N line at right angles Pickering 59-ac. tr. ..... T.A. 3,854 ft.

H. H. Gracey's No. 1 J. A. Morrison, 1,500 ft. N, 200 ft. E, SW cor. J. A. Morris' 109-ac. tr., Wm. English Sur. ..... S.D. 2,600 ft; drlg. wtr. well.

T. A. Martin's No. 1 J. B. Bush, S 8 degrees E, 2,000 ft. from NW cor. J. B. Bush's 77-ac. tr., thence E at right angles to said line 200 ft., Alfred Lindsey Sur. ..... Derrick.

Henry Maulding's No. 1 Frost Lbr. Co., NE cor. Frost Lbr. Co.'s 80-ac. tr., A. D. Fountain Sur. ..... Drlg. 2,940 ft.; hard shale (corrected).

McRoby et al's No. 1 Windham, Wm. Leach Sur., on Windham 296-ac. tr. ..... Rigging up.

Geo. N. Pace's No. 1 E. H. Powers, western J. Timms Sur., 150 ft. E of W line, 200 ft. N of S line, Powers 126-ac. tr. ..... Derrick.

Ridgeway et al's No. 1 Polley, Domingo Gonzales Sur., 3,180 ft. E of SW cor., 160 ft. N at right angles of Polley 457-ac. tr. ..... Drlg. 300 ft.

Schultz et al's No. 1 Hughes, 150 ft. SW cor. Hughes' 110-ac. tr., J. Clay Sur. ..... S.D. in shale 4,155 ft.

A. D. Smith's No. 1 Y. D. Carroll-J. A. Parker Sur., 1,500 ft. N, 300 ft. W, SE cor. J. A. Carroll Sur. .. Drlg. 3,020 ft. lime.

C. H. Tautehahn's No. 1 J. C. Bogard, 300 ft. S, 900 ft. E, NW cor. J. C. Bogard's 52-ac. tr., Thomas Baker Sur. ..... S.D. 20 ft; waiting on D.S.

Tenant et al's No. 1 J. Henry, C. Z. Walker Sur. ..... Fishing for D.S. 3,457 ft.

LOUISIANA-ARKANSAS PROVEN AREAS

(Continued from Page 38)

United Gas Public Service Co.'s No. 1 C. H. Pipes, 2,447 ft. S, 178 ft. E, NW cor. SW, Sec. 35-17-6e..... Began Aug. 30; set 13-in. 182 ft.

United Carbon Co.'s No. 1 Faust Lbr. Co., 1,320 ft. S, 1,980 ft. E, NW cor. SW, Sec. 13-17-5 ..... Comp. for 22,390,000 ft. gas at 2,430 ft.

SABINE PARISH—ZWOLLE

Roy Baker's No. 1 Sabine Lbr. Co., Sec. 1-7-12 ..... W.O.S.R. 2,548 ft.

W. M. Coates' No. 1 Bowman-Hicks, 330 ft. S and W. of C, Sec. 2-7-12 ..... Hole full of fluid 50 per cent S.W. at 2,321 ft.

Dengail O. & G. Co.'s No. 1 Nulton, SE cor. NW NE, Sec. 1-7-12 ..... Comp. 225 bbls., 2,368 ft.

Hawkins et al's No. 1 Moran, Sec. 1-7-11 ..... 400 ft. oil in hole 2,620 ft; W.O. S.R.

O. A. Gautier et al's No. 1 Mischell, 330 ft. E, 150 ft. N, SW cor. SE NW, Sec. 30-8-12 ..... Washing to bottom 2,400 ft.

Hawkins & Antoon's No. 1 Newton, Sec. 1-7-11 ..... W.O.S.R. 2,609 ft.

Hudson & Bird's No. 1 Walden, 480 ft. N, 300 ft. E, SW cor. SW NE, Sec. 26-8-11 ..... S.D. 1,625 ft.

Lanier & Dyer's No. 1 Barthold, 335 ft. N, 525 ft. E, SW cor. SE NE, Sec. 25-8-12 ..... Coring 2,200 ft.

Zeke Lohman's No. 1 McCormick, 660 ft. E, 330 ft. N, SW cor. NE SW, Sec. 2-7-12 ..... S.D. 1,606 ft.

Loring Oil Co.'s No. 18 Bowman-Hicks, 1,280 ft. S, 375 ft. E, NW cor., SW NW, Sec. 15-7-12 ..... Rigging up.

Loring Oil Co.'s No. 19 Bowman-Hicks, 1,475 ft. W, 75 ft. S, NE cor. SW NE, Sec. 16-7-12 ..... Derrick.

Lyons & Neely's No. 1 Duggan, NW SE, Sec. 14-7-11 ... Location.

L. K. McGuffin's No. 1 Bush, NW cor. NW SE, Sec. 1-7-11 ..... S.D. 400 ft.

Ben Merritt, tr.'s No. 2 Byrd, Sec. 1-7-11 ..... S.D. 88 ft.

Houston-Sabine Prod. Co.'s No. 1 Sabine Lbr. Co. (was Triangle Pet. Co.'s No. 2 Sabine Lbr. Co.), 330 ft. N and E, SW cor., Sec. 36-8-12 ..... S.D. 2,440 ft.

Pelican Nat. Gas Co.'s No. 10 La. Long Leaf Lbr. Co., 105 ft. S, 185 ft. W, NE cor. NE NE, Sec. 10-7-11.. Rigging up.

H. W. Perritt's No. 5 Bowman-Hicks, 330 ft. S, 410 ft. E, NW cor. SW SW, Sec. 2-7-12 ..... Began Aug. 29; set 10-in. at 100 ft.; drlg. 285 ft.

As the Modern Liner excels the Clipper Ship

Preformed Wire Rope excels old-fashioned ordinary wire rope

Discarding time-worn traditions cuts wire rope costs

● The tradition that internal stress in wire rope is not harmful—and that it does not affect wire rope life is now exploded. Unsolicited service reports of a wide variety of applications prove 30% to 300% increased service with Tru-Lay Preformed Wire Rope, depending upon the character of the wire rope service and the type of equipment.

● Think what a similar saving would mean to your operating expense! Even 30% longer life means a sizeable saving when translated into dollars. 300% and even greater increased services with Tru-Lay are common. Check your wire rope expense.

● Preforming is the first real basic wire rope improvement in nearly a century. In Tru-Lay, internal stress is eliminated by preshaping the wires and strands so they lie naturally in position. Prove this by cutting Tru-Lay Preformed Wire Rope and note how the wires and strands lie normally in position.

● Then cut ordinary wire rope, and unless you seize the end with a firm wrapping of wire, the strands and wires straighten out and fly apart like a suddenly released clock spring. The difference is shown in the illustration above.

Send for this complete story

Comparing Tru-Lay Preformed Wire Rope with old-fashioned ordinary wire rope is like comparing the efficiency of the modern liner with the old-time clipper ship. Put wire rope on an up-to-date cost-per-dollar basis. Tru-Lay will save you money.

● Let us send you, or the man in your organization responsible for wire rope, a copy of "Why Preformed Wire Rope." Write for it on your business letterhead.

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(In the United States)
American Steel & Wire Co.
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E. H. Edwards Company
Hazard Wire Rope Co.
Pacific Wire Rope Co.

(In Canada)
Dominion Wire Rope Co., Ltd.
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Canada Wire & Cable Co., Ltd.
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ACCO

An Associate Company of the American Chain Company, Inc.

TRU-LAY PREFORMED WIRE ROPE

30% to 300% Increased Service [Depending upon the character of the service and type of equipment

The Texas Co.'s No. 1 L. C. DeLatin, 1,120 ft. W, 200 ft. N, SE cor., Sec. 3-7-11 ..... Began Sept. 1; set 10-in. at 84 ft.

ARKANSAS

UNION COUNTY—EL DORADO

Lion Oe & R. Co.'s No. 9-A G. P. Hayes, 242 ft. S, 246 ft. W, NE cor. Lot 5, NE, Sec. 4-16-15 ..... Reaming to test 5,236 ft.
Southern Prod. Co.'s No. 1 Wingfield, NE cor. SE NW, Sec. 16-19-15 ..... S.D. 2,608 ft.

UNION COUNTY—URBANA

Marine Oil Co.'s No. 1 Winn est., 330 ft. S and E, NE cor. S½ NW, Sec. 11-18-13 ..... T.A. 3,586 ft.
Marine Oil Co.'s No. 2-E Thompson, 330 ft. N, 330 ft. E, SW cor. NE NE, Sec. 10-18-13 ..... Location.
Wilson & Chapman's No. 1 H. Norman, 330 ft. N and E, SW cor. SE NE, Sec. 3-18-13 ..... Drlg. red beds 3,100 ft.

EAST TEXAS

PANOLA COUNTY

Daisy O. & G. Co.'s No. 1 Rucks, Jno. Palmer Sur. .... S.D. 3,264 ft; wtr.
Dillon & Braham's (was W. G. Banks et al's) No. 1 C. O. Baldwin, 1,395 ft. W, 1,362 ft. S, NE cor. Baldwin 290 ac. in Hampton West Sur. ..... S.D. 1,555 ft.
United Prod. Corp.'s No. 17 Steele, 1,320 ft. N, 660 ft. W, SE cor. C. D. Steele lse., in B. C. Jordan Sur. .. Location.
Southwestern O. & G. Co.'s No. 1 E. R. Vinson, 3,005 ft. S, 1,001 ft. W, NE cor. C. T. Anderson Sur. .... S.D. 2,650 ft.

MISSISSIPPI

HINDS COUNTY

Jackson Oil & Gas Corp.'s No. 3 Mayes, Sec. 2-5n-1e, 30 ft. N and 60 ft. W of SE cor. NE NW ..... Rigging up.

RANKIN COUNTY

James Alexander, tr.'s No. 1 Wright Cast Stone Co., 200 ft. S, 1,460 ft. NE cor. NE NW, Sec. 13-5n-1e .. Derrick.
J. E. Grandstaff et al's No. 1 Burford, 2,210 ft. E, 800 ft. N, SW cor., Sec. 11-5n-1e ..... Began Aug. 26; set 10-in. at 99 ft.; drlg. 840 ft.

WILDCAT OPERATIONS IN MISSISSIPPI

ADAMS COUNTY

Company, farm and location—	Remarks:
Ark.-La. P. L. Co.'s No. 1 Brandon Hall Farms, 201 ft. from W line, 390 ft. from S line, Lot 32, Brandon Subd., Sec. 61-18n-1w	Rigged up and S.D.

CLARKE COUNTY

Gulf Ref. Co.'s No. 1-A Long Bell Lbr. Co., C SW SW, Sec. 10-2n-16w ..... Drlg. sandy shale 2,058 ft.

CLAY COUNTY
(Cable tools)

Ohio Oil Co.'s No. 1 Cantrell, NE cor., Sec. 16-15-5 .... S.W. and abd. 4,680 ft.

HINDS COUNTY

Hilgard Gas Co.'s No. 1 The Mississippi Co., Sec. 4-5n-1e, 1,300 ft. E and 450 ft. N of cen of section ..... Derrick.
Howard Oil Co.'s No. 1 Jackson College, C NW NW, Sec. 9-5-1e ..... S.D. 74 ft.
Southern Pet. Co.'s No. 1 Wilson (was Tri-State O. & G. Co.'s), 320 ft. E, 240 ft. N, SW cor. SE NE, Sec. 28-6-1e ..... S.D. 20 ft; W.O.
F. E. Stewart et al's No. 1 Miss. Cotton Seed Porducts Co., Sec. 4-5n-1e, 320 ft. S and 440 ft. W of NE cor. SE ..... Derrick.

HUMPHREYS COUNTY

Danciger O. & G. Co.'s No. 1 Belgrade Lbr. Co., C NW, Sec. 29-14n-4w ..... Set 10-in. at 659 ft.

JASPER COUNTY

Bay Springs Pet. Co.'s No. 1 Keyes, C NW NE, Sec. 2-12-9 ..... S.D. 2,360 ft.

MONROE COUNTY

Amory Dev. Co.'s No. 1 Bourland, Sec. 2-13-1E ..... S.D. 3,015 ft.
McAlpine et al's No. 1 Cowart, second hole, Sec. 2-12-1E. S.D. 3,404 ft.

NEWTON COUNTY

Bob Talton et al's No. 1 Majure, 400 ft. N, 600 ft. W, SE cor., Sec. 25-16n-11e ..... Rigging up.

NOXUBEE COUNTY

Thompson & Donohue's No. 1 Donohue, Sec. 25-16n-17e.. S.D. for fuel 1,715 ft.

RANKIN COUNTY

Attkisson & Dyer's No. 1 Valentour, 200 ft. S, 200 ft. E, NW cor., Sec. 18-5n-2e ..... Set 12½-in. at 60 ft.
Gulf Ref. Co.'s No. 1-A Hanna, Sec. 23-6n-1e ..... D.S. stuck 2,745 ft; T.D. 2,815 ft.
Muse & Muse's No. 1 Webb, center Lot 32, Blk. B, East Jackson Pl., Jackson City Subd., Sec. 12-5-1 .. Rigging up to resume drlg.
Majestic O. & G. Co.'s No. 1 Elton Lbr. Co., Sec. 10-4n-3e. Derrick.
Meredith et al's No. 1 Allen, 470 ft. W, 295 ft. N, SE cor. SW, Sec. 13-5n-1e ..... Began Aug. 29; set 12½-in. at 60 ft.; drlg. 625 ft.
R. A. Moore et al's No. 1 Interior Lbr. Co., Sec. 28-6-1e.. S.D. 900 ft.
Square Deal O. & G. Co.'s No. 1 Spann, NW cor. SE NE, Sec. 13-5n-1e ..... Drlg. 2,325 ft.
Willis & Culley's No. 1 Applewhite & Holden, 10 ft. N, 60 ft. E, SW cor., Sec. 12-5n-1e ..... Moving in rig.

SCOTT COUNTY

M. U. Culley et al's No. 1 Owens, Sec. 2-8-9 ..... Derrick.

WARREN COUNTY

Eagle Bend O. & G. Co.'s No. 1 Kiger, SW cor. SW SE, Sec. 9-18-2 ..... S.D. 2,607 ft.

WEBSTER COUNTY

P. J. McAlpine's No. 1 Henly (was Cumberland Oil Co.'s No. 1 Henly), SE NW, Sec. 15-21n-11e ..... S.D. 1,800 ft.

WINSTON COUNTY

Miss. Drlg. Co.'s No. 1 Scarbrough, NW cor., Sec. 15-12-14 ..... Drlg. 3,808 ft. in black lime and shale.

WILDCAT OPERATIONS IN OKLAHOMA

(Continued from Page 34)

Ault et al's No. 1 Hall, SE NW, Sec. 25-9-19 ..... Shut down 200 ft.
Holden's No. 1 Phillips, SE cor., Sec. 3-9-18e ..... Shut down 1,860 ft.
Marion Oil's No. 1 Sanders, NW NE NW, Sec. 10-9-18e.. Shut down 2,387 ft.

HUGHES COUNTY

Wright et al's No. 1 Ott, SE SW, Sec. 15-5-11 ..... Shut down 1,645 ft.

KAY COUNTY

Lewis et al's No. 1 Harris, SE NW, Sec. 14-25-1 ..... Location.
Mummert Drlg. Co. et al's No 1 Cormick, C NW SE, Sec. 9-27-2 ..... Shut down 3,693 ft.
Blackwell Oil Co.'s No. 1 Harshman, Sec. 2-26-1w ..... Rig on ground.

KIOWA COUNTY

Christian's No. 1 Jones, NE SE, Sec. 8-7-18w ..... Shut down 820 ft.

LATIMER COUNTY

P. English's No. 1 Unknown, NW SE, Sec. 16-6-19 ..... Shut down 1,542 ft.

LINCOLN COUNTY

Mote et al's No. 1 School Land, NW cor., Sec. 36-17-5... Rigging up standard tools.

McINTOSH COUNTY

Patterson et al's No. 1 Smith, SW cor. NW SE, Sec. 32-9-16 ..... Shut down 5,733 ft.

MURRAY COUNTY

Capitol Prod. Co.'s No. 1 Cutchall, SE NE Sec. 6-1-2 .... Rig.

MUSKOGEE COUNTY

Sioux Oil Co.'s No. 1 Unknown, NW SE, Sec. 21-11-19 ... Shut down 1,011 ft.

OKFUSKEE COUNTY

E L. Robinson's No. 1 Rice, NW, Sec. 2-10-9 ..... Location.
Shepard et al's No. 1 Neveas, SE NW SW, Sec. 3-12-10... Shut down 3,638-90 ft.; Wilcox sand; hole full water.

OKLAHOMA COUNTY

Citizens Oil Co.'s No. 1 Sage Barber, NE cor., Sec. 21-11-3w ..... Shut down 1,200 ft.
L. C. Hivick's No. 1 Sunset Addition, NW SW NW, Sec. 17-11-3w ..... Shut down 5,515 ft.
J. F. Cuniff, trustee's No. 1 Church Land, NE NW SE, Sec. 17-12-4w ..... Shut down 6,700 ft.

PAWNEE COUNTY

Rookstool's No. 1 Wylie, NW NE SW, Sec. 6-20-5 ..... Shut down 1,950 ft.
Cochran et al's No. 1 Green, NE cor. SW, Sec. 15-23-5.... Rig.

PITTSBURG COUNTY

Tape Oil Co.'s No 1 Fulton, SE, Sec. 34-7-14 ..... Shut down 1,070 ft.
J. Morrison's No. 1 Fowler, NE SE, Sec. 13-7-17 ..... Rig.
C. Kennedy's No. 1 Travis, C SW NE, Sec. 15-7-14 ..... Rig.
C. Canady's No. 1 Jones, NW cor., Sec. 14-8-14 ..... Rig.

ROGERS COUNTY

Braman Oil Co.'s No. 1 Mare, C SW SE, Sec. 33-19-17.... Shut down 438 ft.

ROGER MILLS COUNTY

Ute Oil Co.'s No. 1 Williams, C SW, Sec. 23-12-34w..... Shut down 5,150 ft.
L. C. Hivick's No. 1 Davis, C NW NE, Sec 4-11-26w..... Drlg. 3,140 ft.

SEMINOLE COUNTY

Sunray Oil Co.'s No. 1 Sunray, NW SE, Sec. 35-5-5 ..... Location.

WICHITA COUNTY

Cooper & Terhune's No. 1 Blocker, NW cor., Sec. 29-8-19w. Drlg. 2,249 ft.
Burns & Prince's No. 1 Deck, SW cor., Sec. 21-8-18 ..... Shut down 1,050 ft.

OKLAHOMA PANHANDLE

TEXAS COUNTY

Cimarron Utilities' No. 1 Unknown, C SE, Sec. 1-3-14.... Completed 2,687-2,720 ft.; 22,200,000 ft. gas.
Three Way Oil Co.'s No. 1 Crane, SW NW, Sec. 11-1-1S.. Shut down 4,750 ft.

SOUTHERN OKLAHOMA

ATOKA COUNTY

Brookshire's No. 1 R W. Rowland, NW NE SE, Sec. 18-3s-10 ..... Drlg. 1,240 ft.

BRYAN COUNTY

Bryan County Oil's No. 1 Childs, NW SE SW, Sec. 7-7-10 T. D. 650 ft.
Bush et al's No. 1 Commerce Trust, NE cor., Sec. 35-6s-9 ..... T. D. 740 ft.; plugged back to 450-80 ft.

JEFFERSON COUNTY

Smith's No. 1 McCarty, SE NW NE, Sec. 18-4s-8w..... Location.

LOVE COUNTY

Autrey et al's No. 2 Cross, CWL SE NE, Sec. 27-6s-2..... Show oil and gas 970-72 ft. and 1,324-34 ft.; T. D. 1,609 ft.; shut down.

MARSHALL COUNTY

Dixson's No. 1 McDuffel, SW SE Sec. 3-7s-6 ..... Rig.
Taliaferro et al's No. 1 fee, NW SE SE NW, Sec. 34-5s-5 ..... Shut down 580 ft.
McCrory et al's No. 1 Little, NW SW, Sec. 30-7s-6..... Bailing 10 bbls. of oil 495-97 ft.; recemented csg.; pumped 110 bbls. 30 hrs.
D. H. Curry's No. 1 Ward, NE SE SW, Sec. 15-5s-6..... Shut down 2,310 ft.

McCURTAIN COUNTY

The Oil Journal's No. 1 Parks, C NE SW, Sec. 17-6s-23 .. Drlg. 700 ft.
Stewart's No 1 Patterson, C SE SE, Sec. 7-6s-24..... Drlg. 975 ft.

PUSHMATAHA COUNTY

George's No. 1 Lane, NW SE, Sec. 32-3s-15..... Shut down 840 ft.
Whitehead et al's No. 1 Messer, SE SW SW, Sec. 35-3s-18 ..... Location.

STEPHENS COUNTY

Brown's No. 1 Hightower, SW SE NE, Sec. 15-3s-5w..... T. D. 989 ft.; show water.

GULF COAST FIELDS AND WILDCATS

(Continued from Page 39)

Cullen & West and Gulf Prod. Co.'s No. 2 H. P. Lockwood, J. Rabb Sur., 300 ft. N and 900 ft. W out of SW cor. 383-acre tract ..... Location.
Cullen & West and Gulf Prod. Co.'s No. 2 A. P. George, J. Ra'b Sur., 300 ft. S and 905 ft. E out of NW cor. 200-acre tract ..... Drlg. sticky shale 3,003 ft.

LOST LAKE—CHAMBERS COUNTY

Pure Oil Co.'s No. 6 Lost Lake, 2,381 ft. W and 289 ft. S of No. 5 in Lost Lake ..... Rigging.

NASH—FORT BEND COUNTY

Harrison & Abercrombie's No. 15 Nash, Thomas Alsbury S League, 450 ft. E and 75 ft. S of Rycade Oil Corp.'s No. 13 Nash ..... Drlg. sandy lime 2,525 ft.

MOSS BLUFF—LIBERTY AND CHAMBERS COUNTIES

Humble Oil & Ref. Co.'s No. 8 Sterling, James McFaddin Sur., 150 ft. from N line and 1,650 ft. from E line of 512-acre tract ..... Drlg. rock 3,704 ft.

REFUGIO—REFUGIO COUNTY

Mission Drilling Co.'s No. 1 O'Brien (W.O.), SW cor. 1½-acre tract, Refugio Town Tract ..... T.D. 6,685 ft.; plugged to 6,300 ft.
Moody-Seagraves Prod. Co.'s No. 4 O'Connor, Refugio Town Tract, 150 ft. from N line and 1,282 ft. from W line of 60-acre tract ..... T.D. 6,477 ft; plugged to 6,435 ft.; coring sand showing oil 6,454 ft.
L. L. Smith's No. 1 L. M. Rogers (W.O.), C of Blk. 87, Refugio Townsite ..... T.D. 6,457 ft; cmtd. 4½-in. csg. 5,300 ft; set whipstock.
United Prod. Corp.'s No. 6 O'Brien, 150 ft. from S line of tract, 350 ft. W of No. 3 ..... Oil sand 6,438-51 ft; twisted off joint drill stem; S.D.; waiting orders.
United Prod. Corp.'s No. 4 M. F. Lambert, Wm. Hews and L. Brown Sur., 2,514.7 ft. NE along NW line from SE cor. lease and 330 ft. NW at right angles... Coring shale and lime 5,625 ft.

SOUTH LOUISIANA FIELDS

LOCKPORT—CALCASIEU PARISH

Vacuum Oil Co.'s No. 5-A Farquahar, 105 ft. S and 110 ft. E of NW cor. SW NE, Sec. 8-10s-9w ..... Drlg. shale and lime 6,326 ft.

JENNINGS—ACADIA PARISH

Yount Lee Oil Co.'s No. 10 Housierre-Latrielle, 5,435 ft. E and 1,070 ft. N of SW cor., Sec. 47-9s-2w..... Drlg. shale 6,975 ft.

EDGERLY—CALCASIEU PARISH

Pelican Natural Gas Co.'s (Rex) No. 3 Prairie Narroni, Sec. 21-9s-11w, 125 ft. from S line and 50 ft. from W line of tract ..... Tested salt water 4,387 ft.; drlg. gumbo and lime 4,460 ft.

HACKBERRY—CAMERON PARISH

R. E. Seiss' No. 2 J. M. Vincent ..... T.D. in rock 2,402 ft.; cemented 6⅝-in. casing 2,004 ft.
Calcasieu Oil Co.'s No. 3 Landry, Sec. 13-12s-10w, 139 ft. from N line of 11-acre tract and 300 ft. E of No. 1.. Rig.
Yount Lee Oil Co.'s No. 43 State, 1,690 ft. W and 1,320 ft. N of SE cor. of Sec. 13-12s-10w ..... Rig.

VINTON—CALCASIEU PARISH

Vinton Pet. Co.'s No. 11 Matilda Gray, Sec. 33-10s-12w, 600 ft. from S line and 195 ft. from W line (D.D.) ..... Coring sand 3,680 ft.

MISCELLANEOUS WILDCATS

TEXAS

BRAZORIA COUNTY

Cullen & West's No. 1 Nash, Thomas Alsbury Sur. No. 4, 2,600 ft. E and 1,240 ft. S of SW cor. Mrs. R. L. Young 1,483-acre tract ..... Abd. in shale and lime 5,470 ft.
United Oil Syndicate's No. 1 Levitt, 900 ft. from W line and 400 ft. from S line of John Peske Sur..... Drlg. hard shale and lime 2,080 ft.

The Texas Company's No. 1 Belcher, Manvel, 167 ft. SE of NW line and 223 ft. of NE of SW line, Lot 18, Blk. A, Suburban Gardens Subd.....Sand and shale showing oil 5,465-83 ft; cmtd. 9⅝-in. csg. 5,460 ft.

BURLESON COUNTY

Reynolds Oil Co.'s No. 1 Harris, 500 ft. from W line and 400 ft. from N line of J. M. McKean Sur.....S.D. 400 ft.
Marek & Son's No. 3 A. Marek, N. McFaddin Sur., 1,068 ft. N and 225 ft. W of SE cor. of tract.....Spudded.
Marts et al's No. 1 W. H. Boyett, W. McWilliams Sur., 3,168 ft. N of N cor. of City National Bank 208-acre tract and 300 ft. SE of NW line of Boyett tract..Drlg. sticky shale 2,403 ft.

FORT BEND COUNTY

Stone & Wyman's No. 1 Beard, H.&T.C. Sur. No. 118, 1,150 ft. from NW line and 1,592 ft. from NE line....Drlg. 422 ft.

GRIMES COUNTY

Rianjo Oil Co.'s No. 2 Cuthrell, Pat B. O'Connor Sur., C of 110-acre tract .....Drlg. sticky shale and lignite.

HARDEN COUNTY

D. O. Speight's No. 1 Guedry, 4 miles S of Baton.....Drill stem stuck 4,320 ft; abd.

HARRIS COUNTY

Givens & Daybault's No. 1 Lobit, David Middleton Sur., Blk. 19, Lobit Subd. .....Drlg. sticky shale 1,304 ft.
Humble Oil & Ref. Co.'s No. 2 Irwin (D.D.), Mykawa, Wm. Lovett Sur.....Drlg. sticky shale 4,215 ft.
Humble Oil & Ref. Co.'s No. 5 Minnetex, Mykawa, 150 ft. from S line and 200 ft. from W line, Lot 261, Wm. Lovett Sur. .....Location.
J. P. Hunnicutt's No. 1 Haney, T. Pitching Sur., 150 ft. out of NE cor. of Geo. E. Haney 730-acre tract.....Rig.
Louisiana Oil & Dev. Co.'s No. 1 J. W. Wilson, W. Ritchie Sur. .....Location.
Shubert & Alexander's No. 1 Herman Hale, 1,058 varas E of NW cor. R. A. Hanks Sur., thence 790 varas S and thence 70 varas W 74°.....Drlg. 665 ft.

JACKSON COUNTY

Chicago Gulf Co.'s No. 1 Rogers, SE cor. of Blk. 14, N. Rodrigues Sur. .....T.D. 3,952 ft; cmtd. 6⅝-in. csg 3,945 ft.
Chicago-Gulf Oil Co.'s No. 9 Drushell, Edna F. Rodrigues Sur., 1,080 ft. N, 58° E No. 8.....Derrick.
Francitas Oil & Land Co.'s No. 1 Thrull, 3,260 ft. SW of N cor., P. Green Sur., 540 ft. SE of E bank Caranchua Creek .....Derrick.

LIBERTY COUNTY

L. B. House's (I. R. Ingram) No. 1 C. T. Palmer, James Fenner Sur., 1,000 ft. from W line and 850 ft. from S line of tract.....Drlg. shale and lime 2,719 ft.
Hamm et al's No. 1 Harvard, Davis Hill.....Gumbo 1,015 ft; S.D.
Tucker et al's No. 1 Bell, H.&T.C. Sur. No. 4.....Abd. 2,970 ft.

MONTGOMERY COUNTY

Humble Oil & Ref. Co.'s No. 1 W. A. Penn, 750 ft. from N line and 900 ft. from E line of S. J. McFarland Sur. .....Rig.
Strake et al's No. 1 South Texas Dev. Co., 468 ft. in westerly direction along N line of Theo. Slade Sur. from SW cor. of A. McGowan Sur., and thence 750 ft. in southerly direction at right angles from said line in Slade Sur.....Spudded.

ORANGE COUNTY

Altex Oil Co.'s (Veteran Oil Co.) No. 1 Reed, A. Nelson Sur. No. 1, 500 ft. from N line and 250 ft. from E line of tract .....T.D. 4,603 ft; sidetracked 1,200-2,200 ft; S.D.
Crew Oil Co.'s No. 1-A Mansfield, 50 ft. E of No. 1.....Drlg. shale 1,636 ft.

POLK COUNTY

Freeman et al's No. 2 Freeman.....Drlg. shale 3,162 ft.
T. B. Hoffer's No. 1 Saner-Ragly Lbr. Co., 300 ft. out of most northerly cor. of most easterly County School Land Abst. 371 .....Derrick.
Sunshine Oil Co.'s No. 1 Olliver, A. Viesca Sur., 600 ft. NE along SE line from S or SW cor. of 50-acre tract and thence 200 ft. NW at right angles.....Drlg. shale 4,011 ft.
Trans-Coastal Oil Co.'s No. 1 M. E. Roberts, J. F. Rumayor Sur., 350 ft. from W line and 150 ft. from N line of tract .....S.D. 734 ft.

REFUGIO COUNTY

Blanco Creek Oil Co.'s No. 1 Damaan, 150 ft. from N line and 150 ft. from W line of Blk. 14, Bonnie View Ranch Subd. .....Drlg. shale 4,610 ft.
Humble Oil & Ref. Co.'s No. 1 O'Connor, John Keating Sur., 6,012 ft. S from NE cor. along SE line of Lon T. Ross Sur., thence 7,375 ft. W at right angles in John Keating Sur.....Coring sandy shale 2,442 ft.

SAN JACINTO COUNTY

E. P. Edwards' No. 1 J. R. Bennett, Cold Springs.....Drlg. gumbo 750 ft.

TYLER COUNTY

King Oil Co.'s No. 1 Caswell.....Sand and shale showing oil 1,255 ft; cmtd. 6-in. csg. 1,218 ft.
Allied Pet. Co.'s (Texas Southern Pet. Co.) No. 2 Wilson, Mrs. E. Cherry Sur. No. 798, 1,500 varas from W line and 600 varas from N line.....Fishing 5,025 ft.

VICTORIA COUNTY

Houston Oil Co.'s No. 1 Conrad, T.&N.O. Sur. No. 1, 1,100 ft. from SW line and 100 ft. from NW line.....T.D. 5,003 ft; drill stem stuck in heaving shale showing gas; cmtd. 8¼-in. csg. 4,740 ft; drlg. plug.
The Texas Company's No. 3 McFaddin, S 15° W., 6,200 ft. and N 75° W 1,850 ft. out of NE cor. John M. Rine Sur. .....Sand and shale 3,974 ft; reaming.
United Prod. Corp.'s No. 5-A McFaddin, 4,250 ft. N along extended E line of C. L. Mann Sur., in Maria Travieso Sur. .....Sand showing gas 3,306 ft.

WALLER COUNTY

McDaniel and associates' No. 1 Citizens State Bank, B.B.B.&C. Sur., C of 150-ac. tract .....Rig.

WASHINGTON COUNTY

Cord Oil Co.'s No. 1 Hahn, 500 ft. from N line and 1,852 ft. from W line of J. H. Alcorn Sur., Abst. 3..Drlg. sticky shale 2,362 ft.
Penn-Tex Oil Co.'s No. 2 Kamas Brenham, S. M. Williams Sur. .....Drlg. hard sand and shale 2,220 ft.

WHARTON COUNTY

Bonds & Alexander's No. 1 Hahn, S.A.M.G. Sur., Sec. 13, 800 ft. W and 200 ft. N of NE cor. 152.1-ac. tract .....Drlg. blue shale 1,283 ft.
W. H. Wallace et al's No. 1 Lee, 600 ft. S and 800 ft. W from NE cor., Sec. 18, G.H.&H. Sur.....Rig.

SOUTH LOUISIANA
ASCENSION PARISH

McElroy Petroleum Co., 150 ft. S and 150 ft. W of NE cor., Sec. 29-10s-4e.....Rig up to deepen; formerly abnd. in sticky shale 4,070 ft.

CALCASIEU PARISH

Crawford Doyle's No. 1 Johnson, Sec. 23-9s-13w .....S.D. 875 ft.
I. O. Davis' No. 1 Industrial, Sec. 29-9s-10w .....Standing 6,568 ft.
Wilfred Lahay's No. 1 Jardell, Sec. 16-10s-12w .....S.D. 3,650 ft.
Success Oil Co.'s No. 1 Hewitt, 90 ft. out of SW cor., Sec. 11-9s-11w .....Rig.
Vacuum Oil Co.'s No. 1 Walt (D.D.), 225 ft. out of SE cor., Sec. 12-9s-7w .....Sand showing oil 6,961-79 ft; pulling 7-in. csg. to reset.

CAMERON PARISH

Vacuum Oil Co.'s No. 2 Cameron Meadows, 2,120 ft. S and 1,900 ft. W from NE cor., Sec. 21-14s-9w (500-ft. S No. 1) .....Drlg. sandy shale 4,382 ft.

IBERIA PARISH

Jefferson Lake Oil Co.'s No. 21 Lake Peigneur, Sec. 58-12s-5e, 300 ft. NW of No. 20 .....Cap rock 529-668 ft; showing sulphur; standing.
Jefferson Lake Oil Co.'s No. 22 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 21 .....Location.
Jefferson Lake Oil Co.'s No. 23 Lake Peigneur, Sec. 58-12s-5e, 600 ft. NW of No. 22 in line with No. 21..Location.

IBERVILLE PARISH

Standard Oil Co.'s No. 1 Myrtle Grove-Wilbert, Bayou Choctaw, Sec. 52-9s-11e, 350 ft. W No. 1 Gray ....Drlg. sand and rock 1,619 ft.
Standard Oil Co.'s No. 7 Wilbert, Bayou Blue .....Derrick.
Standard Oil Co.'s No. 6 Schwing, Bayou Blue, Sec. 73-9s-11e, 317 ft. S of No. 3 .....Drlg. hard sandy shale 4,147 ft.
Standard Oil Co.'s No. 7 Schwing, Bayou Blue, Sec. 74-9s-10w, N 45°, W 1,800 ft. from No. 5 .....T.D. 1,350 ft; sand showing oil 1,307-12 ft.; S.D. pending completion of No. 6.

PLAQUEMINES PARISH

Humble O. & R. Co.'s No. 5 Cockrell-Moran, Lake Grand Ecaille, 10,277 ft. N and 2,614 ft. W of NE cor. of Twp. 21s-26e .....Location.
Humble O. & R. Co.'s No. 6 Cockrell-Moran, Lake Grand Ecaille, Twp. 21s-26e, 5,000 ft. E of Washington Sta. .....Location.
Humble Oil & Ref. Co.'s No. 2 State, Lake Grand Ecaille, Sec. 14-20s-26e .....Drlg. salt and anhydrite 1,777 ft.

TERREBONNE PARISH

La. Gas & Fuel Co.'s No. 2 Minor, 3,480 ft. S and 1,980 ft. E of NW cor., Sec. 3-18s-16e .....Waiting drill pipe 40 ft.
The Texas Company's No. 1 La.L.&E., Bay St. Elaine ....T.D. 5,700 ft; drill stem stuck; trying to sidetrack.
The Texas Company's No. 3 La.L.&E., Bay Junop .....Location.
The Texas Company's No. 4 La.L.&E., Bay Junop .....Location.
The Texas Company's No. 10 State, Lake Barre .....Location.
The Texas Company's No. 11 State, Lake Barre .....Derrick.
The Texas Company's No. 12 State, Lake Barre .....Location.
The Texas Company's No. 13 State, Lake Bane (W.O.)..T.D. 4,900 ft. in salt; sidetracked and drlg. sticky shale 2,550 ft.
The Texas Company's No. 14 State, Lake Barre .....Location.
The Texas Company's No. 6 State-Lake Pelto (D.D.), 1,650 ft. N and 670 ft. W from SE cor. tract, Sec. 8-23s-18e .....Drlg cap rock 1,917 ft.

VERMILLION PARISH

Pure Oil Co.'s No. 1 Alliance Land, Sec. 34-11s-1w, 2,600 ft. N and 300 ft. E of SW cor., section .....Salt 6,404₅58 ft.
Pure Oil Co.'s No. 2 Southwest Louisiana Land Co., 1,300 ft. E and 300 ft. S of NW cor., Sec. 4-12s-1w..Drlg. sand 2,285 ft.

WEST FELICIANA PARISH

Putnam Syndicate's No. 2 Como Plantation, Sec. 51-1s-4w.Shale and lime 2,050 ft; waiting on 8¼-in. csg.

WILDCAT OPERATIONS IN SOUTHWEST TEXAS

(Continued from Page 40)

COMAL COUNTY

Caldwell & Lanier's No. 1 T. J. Byler, 175 varas from W line, 370 varas from N line of 320-ac. tract in the H.E.&W.T. No. 5,894 Sur.....T. D. 722 ft.; set 8½-in. csg. at 704 ft.

DEWITT COUNTY

Gibson & Sturm's No. 1 Clark, Dolores Alderete Sur.....Rigged up; standing.

DUVAL COUNTY

Camp and Southern Crude's No. 2 Hubbard, 990 ft. from N line, 330 ft. from W line of B.S.&F. Sur. No. 73 .....Spudded in.
Coffee et al's No. 1 Jose Garza, center Sur. 49.....T. D. 1,920 ft.; abnd.
L. E. Lockhart's No. 1 Sutherland, 330 ft. from N and W lines of Sur. 511.....T. D. 1,850 ft.; drlg.
S. J. Carpenter et al's No. 1 Juan Benavides, Blk. 33, Mesquite grant .....T. D. 1,712 ft.; standing.
Frank Gravis' No. 1 Shallert, Sur. No. 255.....Drlg. 460 ft.
South Texas Production Co.'s No. 1 Benavides.....Making location.

FAYETTE COUNTY

Elam & Reynolds' No. 1 Florence, M. Muldoon Sur. No. 13 .....T. D. 2,610 ft.; flowing fresh wtr.

FRIO COUNTY

A. H. Wray's No. 1 Roche, 330 ft. from N and W lines of NW SE Sec. 123, A. Hutzler Sur. .....T. D. 700 ft.; drlg.

GUADALUPE COUNTY

Harry Bruner's No. 1 Jim Sherrill, 330 ft. from NW and SW lines of tract in George Allen League.....T. D. 180 ft.; standing.
McGarrity et al's No. 1 A. Wesch, Jr., 150 ft. to N and E lines of farm, H. M. Thompson Sur.....T. D. 1,200 ft.; drlg.
Schleyer, Atherton and Armstrong's No. 1 Ogletree, Robert Smith Sur. .....T. D. 1,745 ft.; shut down.
Linne et al's No. 1 J. E. Linne, center 283-ac. tract in V. Cortario Sur. .....T. D. 1,570 ft.; shut down.
W. J. Walton's No. 1 Zoboroski, 700 ft. W line of tract, 500 ft. S of Guadalupe River, in Joseph D. Clements Sur. .....T. D. 2,210 ft.; flowing 8 bbls. daily.

HAYS COUNTY

J. C. Jones et al's No. 1 Byder, John Ingram Sur.....T. D. 930 ft.; standing.

KARNES COUNTY

V. F. Neuhaus' No. 1 Russell, 150 ft. from E line of tract, 150 ft. N of highway, Carlos Martinez Sur. ....Spudded in; drlg. water well.

KENDALL COUNTY

Borgett et al's No. 1 W. Haag, 3,804 ft. from N line, 1,506 ft. from W line of W. Avery Sur. .....T. D. 1,245 ft.; shut down.
Dixon Oil Co.'s No. 1 Ottmar Behr, 823 ft. from S and N lines of Jessie Wilson Sur., 3 miles S of Sisterdale .....T. D. 2,708 ft.; drlg.
Sitton et al's No. 1 Garvin, C of NE of D. L. Richardson Sur. in the D. L. Richardson Sur., 1 mile NE from Kendalia .....T. D. 1,482 ft.; shut down.
Fred S. Dibble's No. 1 Ellebrach, Sur. 77, N part of county .....T. D. 50 ft.; shut down.
Sartain's No. 1 Lawhon, 30 ft. SE of Perkins' No. 1 Lawhon; taken over at 281 ft. .....T. D. 575 ft.; no report.

KERR COUNTY

Herbert Oil Co.'s No. 1 J. D. Whit, 1,320 ft. N line, 1,320 ft. W line of Sec. 1,923, W. H. Hamilton Sur. ...T. D. 200 ft.; standing.
Evans & Gant's No. 1 Seiker-Mears, C.C.S.D.&N.G.R.G. Sur. No. 1,605 .....T. D. 4,031 ft.; shut down.
Evans & Gant's No. 1 E. Young, A. E. Burge Sur. No. 28 .....T. D. 1,312 ft.; standing.
Evans & Gant's No. 1 Love in J. Martinez Sur. No. 1,594, 1,320 ft. from W line of survey and 660 ft. S of S line of Sur. No. 1,597 .....T. D. 4,060 ft.; shut down.
Evans & Gant's No. 2 Love, 150 ft. S and W line of Sur. 1,593 .....T. D. 1,235 ft.; drlg.

LIVE OAK COUNTY

Henderson Coquat's No. 1 Hewitt .....T. D. 400 ft.; standing.
Hughes et al's No. 1 Martin, 300 yards S of Simms' No. 1 Holsmark .....Moving in rig.

LEE COUNTY

Burt et al's No. 1 R. C. Saunders, J. Maxmilian Sur. ....T. D. 4,034 ft.; shut down.
A. H. Wheeler and associates' No. 1 fee, Blk. 47, H. Donohue Sur. .....T. D. 3,360 ft.; shut down.
C. B. Polk et al's No. 1 Stoltz, Hiram Donohue Sur. ...T. D. 2,300 ft.; shut down.

MAVERICK COUNTY

I. N. Boicourt's No. 1 Bandera School Land .....T. D. 2,200 ft.; fishing.

McMULLEN COUNTY

Whall, Scherer et al's No. 1 Shiner, Henry Brewer Sur. ..T. D. 2,008 ft.; shut down.

A. E. Adams' No. 1 Martin, 150 ft. NW line, 150 ft. to SW line of E. Melon No. 212 Sur. ..... T. D. 175 ft.; drlg.

MEDINA COUNTY

Frank A. Brown's No. 1 Fohn, 150 ft. from E line, 790 ft. from N line of J. F. Torry Sur. No. 113 ..... T. D. 70 ft.; drlg.
O. H. Fretelliers' No. 1 J. F. Riley, 450 ft. from N and 750 ft. from E line of tract in Sur. No. 449 ..... T. D. 130 ft.; abnd.
Genard Bros.' No. 1 L. Crawford, 150 ft. to N and W lines of tract in J. Keppler Sur. No. 478 ..... T. D. 1,425 ft.; drlg.
J. H. Hickey's No. 1 Jungman, at N end Chicon Lake ..... T. D. 650 ft.; shut down.
Star Pet. Co.'s No. 1 Medina Valley Irrigation Co., 150 ft. from S and E lines of Isom Palmer Sur. No. 20 .. T. D. 825 ft.; drlg.
Yancey Dev. Co.'s No. 1 Fassler, Sur. No. 801 ..... T. D. 1,945 ft.; fishing for fishtail bit.

MILAM COUNTY

Dil-Tex Oil Corp.'s No. 1 E. Lawson, 560 ft. from NE and 270 ft. from SE lines of farm in Fernando Rodriguez Sur., near Cause ..... Rigging up.
Dil-Tex Oil Corp.'s No. 1 Dilbeck, 450 ft. N and E lines of farm, Fernando Rodriguez Sur. ..... T. D. 2,500 ft.; abnd.
H. W. Elliott's No. 1 Marek, 767 ft. from N line, 500 ft. from W line of 160-ac. tract in B. Wickson Sur. .... T. D. 275 ft.; drlg.
Nowlen's No. 1 Beard, 1,350 ft. from SE line, 450 ft. from SW line of farm, in J. F. Guthrie Sur., 4 miles S Thorndale ..... T. D. 300 ft.; shut down.
Red Bank Oil Co.'s No. 1 Foster, A. G. Berry Sur. ..... T. D. 4,690 ft.; fishing.
Wilson-Broach Co.'s No. 1 E. L. White, 250 ft. from S and E lines of S. Frost Sur. ..... T. D. 3,095 ft.; drlg.

NUECES COUNTY

Southern Crude Oil Pur. Co.'s No. 1 Chas. E. Stratton, 1,650 ft. E line, 330 ft. S line of P. Sancho Sur. .... T. D. 4,752 ft.; set csg.; preparing to drill in.

REAL COUNTY

McGinley Corp.'s No. 1 Haby, C of SW Sec. 175 ..... T. D. 2,530 ft.; hauling in csg.

SAN PATRICIO COUNTY

Jacob, Buzzini, Pickett's No. 2 Baldwin, three-fourths mile from S and W lines of tract ..... T. D. 2,975 ft.; drlg.
Welder Oil Corp.'s No. 2 Welder, 150 ft. E of C of W line of 100-ac. tract ..... T. D. 3,654 ft.; tested 1,000 lbs. in 4 minutes; coring.

STARR COUNTY

Hooks & Weaver's No. 1 Kelsey-Bass, in Blk. 6, Porcion 76 ..... T. D. 465 ft.; complete, 20 bbls. oil daily.

TRAVIS COUNTY

C. R. Franklin et al's No. 1 J. Wilson, 160 ft. from N and W lines of farm in A. Alexander Sur. ..... Drlg.
Fritz Fuchs' No. 1 L. Ballerstedt, 450 ft. from N line, 750 ft. from E line of tract in Amos Alexander Sur. ..... T. D. 1,200 ft.; drlg.
Fritz Fuchs' No. 1 A. F. Smith, 150 ft. from W line, 750 ft. from N line of tract in D. Kimbor Sur. .... Location.
Ray & Henze's No. 1 Hatech, in C of tract in S. Hamilton Sur. ..... Drlg. 100 ft.
Waldron et al's No. 1 T. Cook, 900 ft. from NW line, 3,500 ft. from SW line of D. H. Minor Sur. ..... T. D. 740 ft.; shut down.

WEBB COUNTY

Cole Pet. Co.'s No. 4 Benavides, Sur. No. 1,613 ..... T. D. 3,800 ft.; drlg.
Eugene Garner, Jr.'s No. 1 Billings, 411 ft. E line, 956 ft. N line of NW NE, Sur. 71 ..... Building derrick.
O. W. Killam's No. 2 Bruni, S of Los Ojuelos ..... Location.
South Texas Production Co.'s No. 1-B Bruni, 660 ft. from NW and SW lines of Sur. No. 127 ..... T. D. 2,035 ft.; drlg.
Southern Gas Utilities and O. W. Killam's No. 1 de la Garza ..... T. D. 2,570 ft.; running tubing.

WILLIAMSON COUNTY

Citizens Oil Development Co.'s No. 2 Forewood, 1,200 ft. to NE line, 1,420 ft. to SE line of farm and survey in A. S. Fisher Sur. ..... T. D. 1,467 ft.; shut down.
Hays & Gee's No. 1 E. G. Johnson, 1,800 ft. from N line, 170 ft. from E line of tract in B. C. Low Sur., S of Georgetown ..... T. D. 1,325 ft.; drlg.
H. Fritz et al's No. 1 fee, 450 ft. from S line, 1,050 ft. from W line of farm in H.T.&B. Sur. ..... T. D. 930 ft.; abnd.; skidding rig.
H. Fritz' No. 2 Fee, 35 ft. N of No. 1 Fee ..... T. D. 165 ft.; drlg.
McLean's No. 1 R. C. Miller, 300 ft. from S line, 150 ft. from W line of farm in Manlove Sur. ..... T. D. 1,900 ft.; reinstated; cleaning out to deepen.
R. S. Wilson's No. 1 Speckels, 150 ft. N of road, 600 ft. from W line of farm in J. Jordan Sur., 1 mile N of Coupland ..... Rigging up.

WILSON COUNTY

A. M. Blume's No. 1 Nickolson, C. Diaz Sur. ..... T. D. 1,300 ft.; drlg.

ZAPATA COUNTY

F. H. Etheridge's No. 1 Henne-Winch, in Sur. No. 286 ... Rigging up.
O. W. Killam's No. 1 A. M. Bruni, 2,610 ft. from NE line and 3,850 ft. from SE line of 2,561-ac. tract in Borrego grant ..... T. D. 2,035 ft.; drlg.
McCaldin, Owen & Newton's No. 1 F. Guerra, in Sur. 161.. T. D. 1,847 ft.; tested salt water; abnd.
H. L. Sargent's No. 1 Gutierrez, 922 ft. from W line, 472 ft. from S line of Blk. 5, Porcion 10, in Borrego grant ..... Rigging up.
T. H. Ward's No. 1 Uribe, 150 ft. NW line, 150 ft. SW line, Blk. 8 Subd., Share 7, Partition No. 6, T. Uribe Partition of Jose V. Borrego Sur. ..... Rigged up and standing.
Bill Henry et al's No. 1 Gopher Trust estate, Borrego grant ..... T. D. 1,525 ft.; standing.
Penny Prod. Co.'s No. 1 Juan V. Cuellar, Jr., et al, 175 ft. NE line, 175 ft. SE line, Poppas Subd., Porcions 33 and 34, Blk. 1, Sur. 2 ..... T. D. 2,035 ft.; dropped till work resumes.
National Oil Co.'s No. 1 Zapata Trust estate, 617 ft. NW line, 96 ft. NE line, Blk. 97, De Prom Subd., Porcion 6 ..... T. D. 600 ft.; standing.
National Oil Co.'s No. 2 Adams, 150 ft. from NW line and SW line, Blk. 11, Borrego grant ..... T. D. 1,320 ft.; standing.

CALIFORNIA FIELDS

(Continued from Page 46)

flow upon completion at 2,999 feet after being plugged back from 3,112 feet and it was accordingly put on the beam. The initial pumping was 101 bbls. of 39.8 gravity oil cutting 2.5 per cent. In the Playa Del Rey Field of Los Angeles Basin the Herndon Petroleum Co.'s No. 3 Venice failed to hold up as water apparently broke in immediately following the preliminary production test conducted last week. This well looked unusually good and flowed for a short time at the rate of 1,580 bbls. per day. The 6⅝-inch water string has been recemented at 6,020 feet and another production test is scheduled for an early date.

Developments in the Huntington Beach town lot section were not particularly encouraging due to the unsuccessful production test conducted by W. E. McCaslin and the Superior Oil Co. The latter tested out No. 2-7 Gillette with negative results and drilling was resumed in an effort to test out the deeper zone encountered in W. E. McCaslin's No. 17 Transport. The failure of No. 17 Transport to make a better showing has been somewhat disappointing but McCaslin has not yet given up hope of developing commercial production. A survey indicated the well had bridged over and a compact mass formed in the bottom of the hole by heavy mud. To dislodge the bridge and loosen the formation, the Ford Alexander Corp. exploded four charges of nitrogel. A thermometer test showed the temperature to be 240° F., the hottest water recorded in any well drilled in Los Angeles Basin. Previous to using nitrogel, samples of nitroglycerin and T. N. T. were let down into the well to determine if they would explode under normal conditions. A 115-pound charge of nitrogel was subsequently run in and it exploded in 11 minutes. A second charge landed approximately 150 feet above the first exploded in 15 minutes and a third charge was set off by the natural heat of the well in 22 minutes. The fourth required 25 minutes. This is the first successful use of explosives in California where the natural heat of the well was utilized. In the Birch Royer well at Maricopa several gelatin shots were used but this required an electric spark. The well temperature in this instance was 210° F. at a depth of 9,000 feet.

Drilling at Dominguez

The Union is making fairly good footage in its four drilling wells in the Dominguez Field of Los Angeles Basin, although no attempt is made to stimulate fast drilling as this work is undertaken because of lease requirements. The Shell has started rig construction for No. 40 Reyes, a new well to be drilled in this district, this offsetting being necessary because of the drilling started by the Union, which in turn was made necessary because of lease requirements. The Wilshire Oil Co. is making preparations to drill a second test on the Potrero Country Club property in the Potrero Field of Los Angeles Basin, where it finished a 1,000-bbl. well last June after the property had been quit claimed by the Associated Oil Co. The Wilshire's new well will probably be started within a few weeks as a time limit for additional drilling expires around the end of September.

Although drilling operations in the Ventura Avenue Field have been reduced to a minimum, three wells are being deepened in an effort to determine the possibility of developing commercial production in the new deep zone found by Associated Oil Co. a few months ago. These three exploration wells are Pacific Western Oil Co.'s No. 7 Orton, the Shell's No. 68 Taylor and the Bolsa Chica Oil Co.'s No. 6 Hartman. The Shell's test is of special interest because if commercial production is secured it will automatically extend the proven limits of the field approximately 1,000 feet. The Bolsa Chica Oil Co. is abandoning its wildcat at Coal Oil Point in Santa Barbara County but may drill another well before pulling out of the area.

SOUTHWEST TEXAS FIELDS

(Continued from Page 40)

on the northeast and the old Luling Field on the southwest and is to be an Edwards lime test. It should find the Edwards at about the same depth as in the old Luling Field.

It has been shown that the fault fractures in Guadalupe and Caldwell Counties radiate toward the Dale Field as a center, the Dale Field being a Serpentine plug or igneous intrusion.

Increased Activity

There were 11 new locations announced in Southwest Texas last week, scattered from one end of the district to the other. Several others are expected within the next few days. Completion of No. 3 Bishop Duval Land Co. by the Duval Oil Corp. in the extension to the Schoolfield-O'Byrne Pool in northern Duval County and the announcement of the location for No. 4 has started the Magnolia Petroleum Co. drilling again in that field on the Wilson lease. It has made location for No. 4 Wilson 1,320 feet from the west line and 800 feet from the north line of Survey 134.

Humble Oil & Refining Co. is starting No. 1 Laura Thompson in southeastern Bee County and O. W. Killam is starting a test south of Los Ojuelos in southern Webb County.

Witherspoon Oil Co. carried its No. 1 Knapnick in eastern Bexar County to the Edwards lime at 2,214 feet and got fresh water. Witherspoon took over acreage from the Penn Oil Co.'s unitized block, proven for shallow production by No. 1 Cooksey and has started to test the block for the edges of the pool. No. 1 Knapnick seems to be too far north and it missed the shallow pay.

One abandonment in Milam County and one in Williamson County are to be followed by additional tests. Dil-Tex Oil Corp. abandoned its No. 1 Dilbeck, south of Cause in the eastern point of Milam County at 2,500 feet and is starting No. 1 Lawson in the same survey a little southeast. In Williamson County, H. Fritze's No. 1 fee is abandoned at 930 feet and is skidding the rig 35 feet north. The location is 3 miles southwest of Taylor.

Laredo District

McCaldin and others tried to extend the Henne-Winch-Fariss Pool to the southwest in Zapata County with No. 1 F. Guerra. It reached a total depth of 1,847 feet and tested a little oil and salt water and was abandoned. It is in Survey 161.

CENTRAL WEST FIELDS

(Continued from Page 48)

County, since the depth of 1,840 feet was reached. Another test's outcome has not been reported since reaching the depth of 1,300 feet, being the Phillips Petroleum Co.'s test on the W. R. Moss farm. Section 24, Elk Prairie Township, Jefferson County.

No late report was received from the Bryan Lee Petroleum Co.'s test on the William Langewich farm, Section 4, Centralia Township, Marion County; the last report announced a depth of 1,617 feet had been reached. This test is in the old Centralia Field.

The well being drilled by Northern Illinois Oil & Gas Co. on the Taylor farm near Belvidere, Ill., in Boone County, is now drilling in sandstone at 2,522 feet. The owners report several good oil showings were encountered at 1,100 and 2,260 feet.

KENTUCKY

Development work is rather light in Kentucky and completions are few. Although the price of crude has advanced from 35 cents to 75 cents, it has not brought about any activity even in the shallow producing areas of Hart, Barren, Greene, Ohio, Daviess, Hancock, McLean and Henderson Counties, and the shutdown remains about as it has been for more than a year. Somerset crude in the Cumberland Pipe Line Co., in eastern Kentucky, has reached a price of 80 cents a barrel. Western Kentucky is at 75 cents for the Illinois Pipe Line Co., the Stoll Pipe Line Co., and the Producers Pipe Line Co.

Reports from eastern Kentucky are that the Columbia Gas & Electric Corp. has purchased the properties of the Kentucky By-Products Co., with 31,739 acres, of which 11,880 acres are held under lease and oil and gas rights on 19,859 acres.

In the Bowling Green Field of Warren County, in southern Kentucky, the Curtis & Jordon Oil & Gas Co. drilled in a gas well with 200,000 feet on an unknown lease, and is now drilling a second test.

In Daviess County, in the Crowe Pool, S. A. Cobb and others found a dry hole on the Myrtle Smiser farm, and S. H. Russell found one of the same kind on the Lula Crowe farm, same area. S. A. Cobb and others are drilling No. 3 on the J. P. Howard 106 acres, near Walnut Grove School house, in the Crowe Pool.

Standard Exploration Syndicate is reported to have drilled in a gas well in No. 3 J. H. McNeely farm, on the Farmersville Dome, 6 miles north of Princeton, in Caldwell County.

Two dry holes are announced on the Greenwall and Proctor farms, in Union County, in the northwestern part of Kentucky.

The gasoline tax collections for the first six months of 1931 in Kentucky are given at $4,054,045.86, against $3,873,867.83 for the same period of 1930, a gain of $180,168.03.

MICHIGAN

Indications are for an active drilling campaign in the Isabella-Midland Field, caused by the increase in the price of crude and the finding of wells of value in Vernon Township, Isabella County, and a showing found in an important wildcat venture approximately 10 miles in advance of the Strouble well. Numer-

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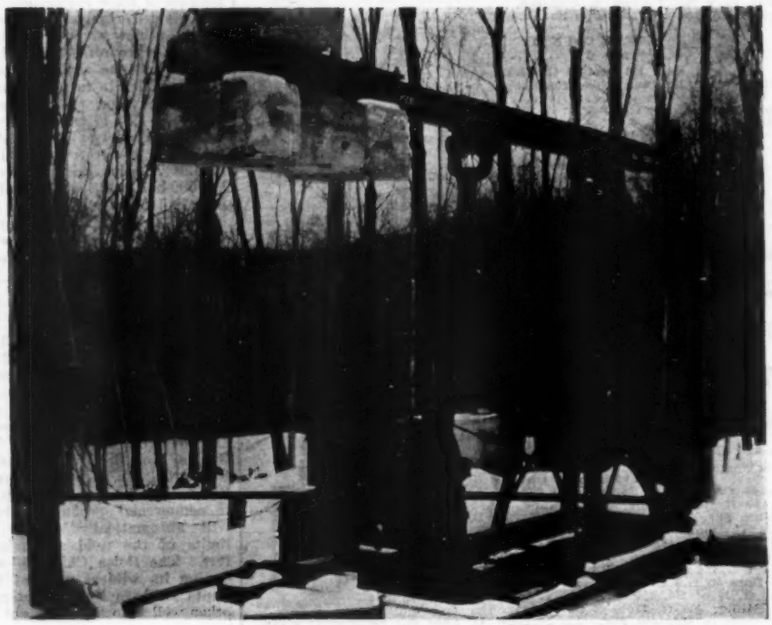

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ous other permits for the drilling of wells have been secured.

Three new producing wells, one in wildcat territory, were being brought in in the Isabella-Midland Field, several other wells are nearing the pay and new projects are under way on several locations.

New producers include Talbot Oil Co.'s No. 1 Adams, Greendale Township, Midland County; No. 1 Ottaway wildcat, Porter Township, Midland County, and No. 1 Russell, Vernon Township, Isabella County.

Interest was centered on the No. 1 Adams, Section 10, Greendale Township, Midland County, directly west of No. 1 Strouble, the first well to be drilled in the new East Field since the disastrous fire in July. First production of the well was made in the top pay of the Dundee formation. The well flowed about 50 bbls. the first two hours after making production and still drilling with an occasional flow from a strong head of gas.

Striking of oil in a wildcat location in Porter Township, Midland County, stirred some excitement, but it is being drilled deeper. Top of the Dundee formation was reported at 3,417 feet, and at last report had drilled about 50 feet into the Dundee. This wildcat is being drilled by the Pacific Oil & Gas Co. on the Ottway farm, Section 26, about 10 miles south and east of the Struble well and if it proves a good producer will open a large exploration area. At least three offsets will be drilled. Two other projects have been drilled in Porter Township, one in Section 8, and the other in Section 32, both being abandoned.

The Meridian Oil & Gas Co.'s No. 1 E. L. Russell, NE SE NW, Section 22, Vernon Township, Isabella County, about 640 feet north of the big Woods farm gusher, was drilled deeper and came in unexpectedly with an oil flow above the derrick. Later, salt water appeared slowly drowning out the oil. Unofficial reports were that the well is producing about 350 bbls. of oil and part salt water.

Marz Well Drilling Deeper

Drilling has been resumed on the No. 1 Marz, SE SW, Section 1, Union Township, Isabella County, 1½ miles northeast of Mount Pleasant. This well was started about two years ago by the St. Clair Oil & Gas Co., and shut down. The top of the Dundee formation was reported at about 3,740 feet, said to be one of the lowest structure wells yet found in Michigan.

The Gas Producers, Inc., better known as the F. M. Stilgenbauer, trustee, is due in the Marshall gas formation in No. 1 A. T. Skerritt farm, NE, Section 5, Bloomfield Township, Isabella County, northwest of the group of gas wells drilled about 12 miles west of Mount Pleasant.

Pure Oil Pipe Line Co. is laying a pipe line from the Vernon Field in Isabella County, to the company's Greendale tank farm, in Midland County, work starting last week.

Permits have been applied for locations in both the new East Field in Greendale Township, Midland County, and the Vernon Field in Isabella County. The new permits are: Columbia Oil & Gas Co., No. 3 Hornick farm, Greendale Township, Midland County, near the No. 1 Hornick producer and the No. 2 Hornick drilling in Section 15; No. 2 A. J. Struble, for Walter McGlanahan, Section 15, east of No. 2 Struble. In Vernon Township, Isabella County, Mellon-Pollock secured permit for No. 1 Thayer, Section 22, a location southeast of the big well on the Brief farm; and Meridian Oil & Gas Co.'s No. 2 Woods, Section 22, same township, and west of the No. 1 gusher.

SOUTHEASTERN MICHIGAN

The D. O. H. I. Oil Corp. is delayed with a job of pulling about 500 feet of casing dropped in a test on the William Farrow farm, SE NW, Section 13, Riga Township, Lenawee County, about 15 miles northwest of Toledo, and a short distance from the town of Ottawa Lake. The well is down to around 1,300 feet and has a strong gas pressure.

The test of G. E. LeVeque on the Scheffler farm, Section 26, Van Buren Township, Wayne County, went below the 200-foot level and failed to find the shallow gas pay, which may be drilled to a greater depth for a supposed gas pay at close around 350 feet.

OKLAHOMA FIELDS

(Continued from Page 34)

was shut down at 1925 feet for water. Heydrick and others, No. 1 Andrews, NW cor. SW SW Section 5-2s 7w, found dry sand at 2,642-64 feet and was shut down. Pace and others' No. 1 Toney, NW cor., Section 27-2s-7w, found a hole full of water at 1,964 feet and will be abandoned. H. J. Brown and others' No. 1 Hightower, SW cor. SE NE, Section 15-3s-5w, found a showing of oil at 555 feet and gas at 706 feet and a hole full of water at 989 feet, and was cleaning out.

In Marshall County, McCrory and McCrory's No.1 Little, NW cor. SW, Sec. 30-7s-6, a semiwildcat well, pumped 150 bbls. of fluid in 37 hours, one-half of which was believed to be water. D. H. Curry and others' No. 1 Ward, NE cor. SE SW Section 15-5s-6, is shut down at 2,310 feet.

Seminole Production

The production from the Greater Seminole area for the week ending September 4 was approximately 60,404 bbls. a day. The first 12 pools listed below comprise the Seminole area, which averaged 37,799 bbls.

Pool—	Bbls.
Little River	9,275
East Little River	1,255
Carr City	4,465
Maud	905
Mission	1,525
Bowlegs	3,700
Earlsboro	3,225
South Earlsboro	2,825
East Earlsboro	1,635
Seminole	970
East Seminole	805
Searight	2,214
Total	37,799
Allen	3,065
Asher	395
Wanette	1,785
Konawa	1,280
Sasakwa	3,510
St. Louis-Pearson	12,570
Total	60,404

Oklahoma City Shipments

The total shipments from the Oklahoma City Field for the week ending September 5 were 49,566 bbls., an average of 7,080 bbls. a day. The shipments declined 15,573 bbls. from the previous week. The shipments by companies were as follows:

Company—	Bbls.
Continental	16,631
Wilcox	12,682
Empire	8,860
Canadian P. L.	2,434
Stanolind	3,386
Anderson-Prichard	1,494
Healdton P. L.	4,079
Total	49,566

The daily production and pipe line shipments from the Oklahoma City Field for the week ending September 5 were as follows:

Date—	Prod.	Wells	Shipments
August 30	15,951	11	6,474
August 31	341	6	5,892
September 1	5,744	10	2,826
September 2	7,724	4	5,299
September 3	817	9	8,391
September 4	10,897	12	12,534
September 5	15,352	13	8,348

Creek County

Gled Oil Co. moved a machine in for No. 1 Holmes, NE cor. SE NE, Section 25-19-8. Location has been made for No. 1 V. Martin, NE cor. NW, Section 36-19-8. Holmes and others made location for No. 1 V. Martin, C NE SW, Section 36-19-8. Burton & Holmes' No. 2 Easly, CNL SE NW, Section 7-19-10, is a machine. Central Commercial Oil Co. made location for No. 2 Char-Co-Te-Tan-Nu, NW cor. NE NE, Section 9-17-10. Curtis Oil Co. staked location for No. 1 W. Littlehead, NW cor. NE NE, Section 19-17-10. Iron Mountain Oil Co.'s No. 2 Smith-Wilkinson, SW cor. SE SE, Section 4-17-10, has been completed for 250,000 feet of gas in sand 1,074-85 feet.

Johnston County

F. E. Galbrith moved a machine in for No. 1 Reardon, SW cor. NW NW NE, Section 17-4s-5.

Marshall County

J. L. Dixon and others' No. 1 McDuffie, SW cor. SE, Section 3-7s-6, is drilling at 160 feet.

Muskogee County

Bryan Petroleum Co.'s No. 1 A. M. Dowle, SE cor. NE, Section 15-14-16, is drilling at 150 feet. C. W. Brown's No. 3 V. Smith, CWL NW SW, Section 14-15-15, has been abandoned at 800 feet. Jolly & Reed's No. 1 L. Bemo, NE cor. NW NW SE, Section 8-15-18, has been deepened and completed for 8,505,000 feet of gas in sand 1,580-84 feet.

Oklahoma County

Spring-Rose Drilling Co. is erecting the rig for No. 1 Springer, NW cor., Section 2-11-3w, Oklahoma City Field. Phillips Petroleum Co. and Shell Petroleum Corp.'s No. 2 Egermier, NW cor. SW SW, Section 23-11-3w, is a cellar. Westgate Oil Co.'s No. 3 Carey, SW cor. SE NW SE, Section 34-12-3w, has been completed for 18,718 bbls. in 5½ hours in Wilcox sand topped at 6,322 feet, total depth 6,531 feet. Spring-Rose Drilling Co.'s No. 1 Connor, CSL SW NW NW, Section 2-11-3w, made 6,195 bbls. in 5 hours from a total depth of 6,370 feet. Morgan Royalty Co.'s No. 1 Bisbee, NW cor. SE NW, Section 3-11-3w, topped Wilcox sand at 6,340 feet, drilled to 6,486 feet and made 7,586 bbls. in six hours. T. B. Slick estate's No. 1 Long, SW cor. NW SE, Section 15-11-3w, made 6,639 bbls. in eight hours from Wilcox sand 6,430-6,511 feet, total depth 6,516 feet.

Okmulgee County

Penrod & Thompson's No. 12 L. Reynolds, CSL SE NW, Section 15-13-14, is rigging up. Juanita Oil Co.'s No. 1-A Terrell, NW cor. NE SE, Section 34-13-14, is a machine. A. Shelton's No. 2 C. Brown, C NE SW, Section 34-13-14, has been completed for 250,000 feet of gas in sand 770-79 feet.

Pontotoc County

Benedum & Trees moved the rig in for No. 1 Burk, NE cor. SW SE, Section 32-5-5, Bebee Pool. Stanolind Oil & Gas Co.'s No. 2 Burke "D," NW cor. SE, Section 32-5-5, has been completed for 132 bbls. in sands 2,307-2,416 feet after plugging back from 2,580 feet to 2,426 feet.

Seminole County

Burgher Oil & Gas Co.'s No. 1 Charley, SW cor. NW SE, Section 18-8-6, is dry and abandoned at 4,306 feet in Wilcox sand.

Wagoner County

Willis & Jones' No. 1 S. Jones, SW cor., Section 29-18-18, is cleaning out at 420 feet to deepen from 550 feet. Boley and others' No. 1-A Haynie, SW cor. NE NE, Section 13-17-15, is drilling at 250 feet.

EASTERN FIELDS

(Continued from Page 48)

Gas Co. is setting a drilling machine for a test operation on the Floyd E. Bias property. Larner Gas Co.'s No. P-86 on the A. A. Swann farm in Grant district is down to 3,540 feet while being prepared for a shot.

In Wetzel County, the Shimwell Oil & Gas Co. is shut down in its test on the W. J. Price farm in Grant district, Wetzell County, with its tools in the hole. This well has been drilled down to 3,053 feet. The Manufacturers Light & Heat Co. has rigs standing at two wells slated to be drilled deeper. They are No. 1,572 on the D. W. Stewart farm in Church district, and well No. 3,300 on the W. P. Hibbard farm in Clay district. The same company is shut down in its No. 3,493 well on the M. Burtag farm in Church district and is testing oil at 3,142 feet. It is also shut down for orders in the process of drilling its No. 2,190 well on the A. and M. E. Jolliffee farm in Clay district to deeper sands. The Pittsburgh and West Virginia Gas Co. has the drilling tools in its No. 5401 well on the Henry Helmick farm in the same district at the 1,300-foot level. J. L. Reed and others are drilling on the W. J. Troy farm in the same district at 2,975 feet.

Biddle and Backus have completed the construction of a rig on the Monroe Lewis farm in Clay district, Wirt County, and on the waters of Big Injun Run, for a test. On the waters of Flint Run and on the Lenora L. Rex farm in the same district, F. L. Andrews has completed a rig for No. 12. In Lee district, Calhoun County, F. F. McIntosh has constructed a rig at the site of his second test on the Edward Gum farm, and Boggess and Bartlett have done likewise at the site of their test on the Stella Shephard farm on Cains Run of Reedy Creek in Reedy district, Roane County.

In the deeper drilling of his test on the Minnie S. Price farm in Paw Paw district, Marion County, Victor Tennant has reached 2,300 feet. The Pedlar Run Oil Co. is shut down at 2,570 feet in its test on the Lewis R. Hess farm in Clay district of Monongalia County.

SOUTHWEST PENNSYLVANIA

The Southwest Pennsylvania Field's lone producer, an oil well, is estimated a 4-bbl. well. It is the Harold Oil Co.'s No. 3 on the J. Minick lease in Robinson Township, Allegheny County. This was completed in the Fourth sand at a depth of 2,245 feet. The Gordon sand on the Adele Cain farm in Smith Township, Washington County, was found dry by the Cloves Oil & Gas Co. in a test after the drilling tools had been driven to 2,257 feet.

Drilling in Southwest Pennsylvania

H. D. Freeland & Co. have reached a depth of 2,925 feet in the deeper drilling of their test on the Silas Coen heirs property in Wayne Township, Greene County, and in the same township, D. L. Shafer & Co. is shut down in its test on the William Jones farm at 850 feet. J. B. Orndoff is drilling at 2,460 feet on the J. E. Scott farm in Center Township.

In Washington County, the Ropp Oil & Gas Co. has sunk its drilling tools to 1,560 feet in its test on the S. McCauslin farm in West Bethlehem Township, and C. O. Inglefield & Co. have their test on the D. P. Inglefield farm at the 2,200-foot level. Potts Brothers have a rig standing on the A. Woodruff farm in Chartiers Township for a test.

In Independence Township, Beaver County, and in the Brush Creek district, the Hoffs Oil Co. is shut down in its second test on the James McCoy farm after sinking its drilling tools to 1,150 feet.

WICHITA FALLS MEN HONOR GOV. MURRAY

FORT WORTH, Tex., Sept. 5.—Operators in the Wichita Falls and North Texas areas will present a life size oil painting of Gov. William H. Murray of Oklahoma to show the admiration and appreciation of the oil men of that district for the governor.

A leather bound scroll with the names of the donors will be presented with the painting, and on this scroll will be the following inscription:

"From the oil fraternity of Wichita Falls, Tex., in appreciation of his untiring services in the interest of the oil producing states, in acknowledgment of the magnitude of his accomplishment, and in recognition of the sterling qualities of his character—We, whose names are subscribed hereto, with sincerest admiration for the man and best wishes for the future, do present this to the subject, William H. Murray, governor of Oklahoma."

TRINIDAD AND PERSIA

WASHINGTON, D. C., Sept. 7.—Cable advices report that the production of crude oil in Trinidad in July amounted to 36,450,000 gallons, the estimated production for August being 35,500,000 gallons, with a large carry-over in storage. The production of asphalt for July was 6,500 tons.

During July the Persian oil fields produced 629,158 tons of crude oil as stated by cable.—C. E. K.

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FOR SALE: Equipment for six wells on salvage basis, two salvaged, four pumping twenty barrels daily, located West Texas. Write R. R. Hoskins, Fifty-nine thirty-three Wakeforest Rice Court, Houston, Texas.

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STAR 38 TRACTOR MACHINE for trade for Standard Cable Tools.
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WANTED TO BUY one used set of official A. P. I. Cable Drilling Tool Joint Master Gauges size three to five inch. Answer Box E-561, The Oil and Gas Journal, Tulsa, Okla.

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ROYALTIES—PRODUCTION

James B. McAnally

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Commercial gas wells estimated up to 80,000,000 feet and low drilling cost attracting world-wide attention.

We offer several choice wildcat blocks of acreage up to 10,000 acres in geologically approved territory, $1.50 to $3.00 per acre. We are equipped to furnish expert geological, engineering and legal service, including the drilling of wells if desired. Correspondence invited.
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Wellsboro, Pa.

ROYALTIES IN S. W. ¼—34 and S. E. ¼—35-15N. 3W and S. W. ¼—11-14N-3W. Send for geology. D. J. Perry, Edmond, Okla.

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105 North Clark St.,
Chicago, Ill.

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REFINERY superintendent, 15 years experience, operating skimming, cracking and lubricating plants—recent experience designing and building same. A-1 references. Address Box E-558, The Oil and Gas Journal, Tulsa, Okla.

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TULSA OKLAHOMA

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POSITION WANTED by Paint and Varnish Efficiency Expert. As supervisor of trucks, service pumps, and station painting. Can reduce maintenance cost. Address Box E-562, The Oil and Gas Journal, Tulsa, Okla.

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Graduate engineer, 12 years oil field experience with major and independent companies, in geological, scouting, land and leasing, drilling and production departments. Thoroughly experienced oil field manager with exceptional references. Will accept position in any of above departments or in charge of operations or developments. Write Box E-522, The Oil and Gas Journal, Tulsa, Okla.

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WANT EXPERIENCED Salesmen to sell Oil Royalties in Chicago. Leads furnished. Big pay for results. Permanent connection. Write to P. O. Box 454, Chicago, Ill.

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WANTED DRILLER, W. B. Johnson (Bill Butler) address, or information, to settle estate. Mary A. Wolff, General Delivery, San Angelo, Tex.

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CHEMIST WANTED
Graduate chemical engineer with experience in the manufacture, treating and testing of lubricants and gasolines. State experience, references and present salary. Address Box E-559, The Oil and Gas Journal, Tulsa, Okla.

WANTED: Salesmen. Oil and gas securities, normal and unique. LANTZ SECURITIES SYNDICATE, Suite 8, Union Building, Prescott, Arizona.

I NEED A SALESMAN to sell Oklahoma oil royalties and land. My plan would place you in business for yourself. Write Box E-493, The Oil and Gas Journal, Tulsa, Okla.

Gasoline Is Weaker in Chicago Area

Opening of East Texas Fields Regarded as Threat to Price Structure. Other Products Higher and Firm

By Robert C. Conine

Chicago Bureau, The Oil and Gas Journal, 6 North Michigan Ave.

CHICAGO, Sept. 7.—The break in the gasoline tank car markets in Chicago district which resulted when the various refiners made a phenomenal effort to move out the remainder of August commitments before the end of the month to brokers and distributors who saw an opportunity to cash in on the then fine prospects for September, had turned into a near collapse of the price structure for these materials Monday when East Texas again loomed as a gigantic threat. In oil trade circles here the gasoline tank car markets are not expected to fall to the low levels witnessed earlier, and it is pointed out that the trade has been making the possibility of an early reopening of the East Texas area an important factor in the immediate marketing activities. In fact, the East Texas refiners are reported to have been offering gasoline for immediate instructions or for delivery over this month subject to developments in the crude oil situation.

Other Refined Products Strong

The other refined products markets in Chicago district, however, were firm Monday and slightly higher in price with a comparative scarcity and much better demand operating in favor of materials suitable for cracking to produce antiknock gasoline and for domestic consumption. Kerosene was unchanged in price and apparently not sharing in the betterment in the heavier distillates. Seasonal considerations, the trade reports, are expected to minimize the influence of the impending East Texas refinery output of fuel oils and gas oils. In Chicago district suitable materials are by no means offered freely and several of the larger refiners have advanced their postings for special reasons so that the ruling quotations show a wide range.

Chicago Market Widely Sought

In spite of the special features of the Chicago gasoline markets which favor the retail buyer considerably as the result of keen competition in the district on the part of various refiners to increase the number of their stops, the district is apparently viewed as a land of milk and honey by Mid-Continent refiners and occasionally by eastern refiners. According to one distributor, the large tank car movement from the Mid-Continent points which is brought out on definite instructions is supplemented by a further influx of gasoline which results from the notion of various refiners that consigning the material to Chicago is nine-tenths of the process of selling the gasoline to anxiously awaiting distributors who are frantically striving to keep this densely populated area supplied with motor fuel. The result is a large volume of gasoline in transit or piling up demurrage on the sidings and prices undergoing constant shading and in some instances reaching ridiculous levels.

Buyers' Market

After a comparatively brief space in which they found themselves threatened by unavoidable delays in refinery shipments and the complete closing down of their sources of supply, the buyers remounted the saddle last week and it is expected that this week they will continue to have any number of offers to pick and choose from. However, if the East Texas production does not have the effect of restoring the crude oil storage at refineries to the point reached before the Oklahoma, East Texas and Kansas restrictions, conditions more favorable to the refiners may ensue, although it is widely complained that the refiners, that is, certain ones, are only involuntarily the factors of improving their own position.

Refiners More Careful

Refiners, however, are apparently taking one important step toward frustrating operations demoralizing to the gasoline wholesale and retail markets. In Chicago district one of the larger independent refiners has blocked three attemps in that many days of buyers to divert a portion of a consignment to secondary buyers who are without contracts and do not consider the time propitious for such agreements with refiners. It is a simple matter to keep tab on tank car orders, but the secondary buyer has another recourse which he will use until one or both of two things happen to alter the position of the original buyer.

Haulers Active

The considerably increased number of haulers, who operate trucks with capacities ranging from 800 gallons to 5,000 gallons (with trailer), gives an indication of the manner in which certain refinery customers are holding to their previous buying schedule although their outlets were those hardest hit by the service station war developments. This also may explain why so many trackage stations continue to flourish in the face of stronger competition. There are a dozen haulers operating the 5,000-gallon capacity trucks and trailers, and it would be difficult to ascertain the approximate number of smaller operators. The hauler obtains a 3½-cent discount from the distributor, the Chicago Q. D. A. on the regular grade, and an additional 1-cent discount for hauling, giving him at least 4½ cents under the posted service station. This is the smallest profit for the hauler and it may be said that discounts totaling up to 5 cents and slightly more are the rule. On the competitive grade the base discount is 3 cents.

Great Lakes Line Indicator

From the Great Lakes gasoline pipe line comes an indication that gasoline oversupply is a very real condition in Chicago district. One of the members of the pipe line, who in August placed the minimum tender of 50,000 bbls. (monthly) in the line for Chicago destination, has made its September tender for Minneapolis destination, and has provided to move gasoline in tank cars to Chicago from St. Louis and Kansas City. It is indicated that the members of the pipe line are seeking to open new marketing fields accessible to the pipe line but at present unfavorable to economical exploitation.

Specifications to Be Bettered

Those who have been wondering how the third-grade gasoline would fare when the thermometer gives its annual warning to motorists need wonder no more, if certain generally reliable sources are to be credited. Natural gasoline is to give the third-grade motor fuel the necessary animus and sprightliness during the frigid months. The major refiners assert that the low-price competitive fuel is here to stay for a long time and the buyers contend that there must be considerable change in the present specifications if it is to survive the winter.

The volume of business in the higher tests, especially the antiknock material, is gradually increasing as cold weather approaches. The higher octane number material is still moving at only half a cent premium above the regular grade. Two antiknock gasolines bring a 3-cent premium and the supply of one of these, made from Mirando crude, is sold out for the remainder of the year. The other is a special blend of butane-free natural gasoline and best grade naphtha and has an octane number of 70.

Gasoline Tank Car Prices

The entire range of gasolines are in a weakened position and show price declines of from one-fourth to seven-eighths cent over last week's ruling markets. The 68-70 gravity gasoline of 360 endpoint, for which there has been considerable new demand, registered the smallest drop when it went to a range of 5¼ to 5½ cents from 5⅝ and 5⅞ cents. The nominal price on the blended gasoline for which there has been slight demand for some time moved down a quarter of a cent to 4¼ cents. This motor fuel has not been popular with the service station operators who have in the past been too often the victims of a woeful lack of technique on the part of the blenders. As for the blenders, now greatly reduced in numbers, the naphthas which give security from the critical attitude that has been inspired among those who have the mission of labeling certain pumps with a placard denoting subgrade material, have soared in price. Nor is natural gasoline, in spite of its present softness, anywhere near the price level that made it sought a little more than a month ago.

Spot Market Quiet

The 58-60 gravity, 437 endpoint gasoline is freely offered at ruling prices of 4¼ to 4½ cents, representing a decline of five-eighths cent over last week's prices. When the U. S. Motor prices ranged from 5 cents upward pending adjustments in tank car movement from the Mid-Continent points, a small movement of gasoline from eastern refineries into Chicago was noted until the close of last week. Distributors and jobbers in Chicago district are reported to be in good storage condition, and, furthermore, the experiences of the past several weeks have caused all the usual spot market habitues to make contracts with refiners if possible. One refiner who operates one of the larger Oklahoma plants said that he had rejected the offers of 10 buyers to make contracts during the next two weeks. The refiner gaves as his reason for refusing to make the contracts the fact that the buyers in question were cutting prices to a figure which surpasses understanding, especially when it is remembered that the posting includes a state gasoline tax of 3 cents.

No Tank Wagon Boost

Monday the trade was still hopeful for the long predicted tank wagon and service station price boost in the territory of Standard Oil Co. of Indiana. The fact that Standard Oil Co. (New Jersey) advanced tank wagon and service station prices 1 cent throughout its territory, except in Delaware, and Standard Oil Co. of Kentucky made a similar advance in its territory, while tank car markets in the East and Southeast were likewise advanced fractionally by major interests, made the outlook for a tank wagon and service station advance in this territory very promising. However, information from a reliable source is to the effect that such an advance will not take place in the territory for a considerable period of time. It is to be noted, however, that recently Standard Oil Co. of Indiana moved up the price of Stanolind Blue half a cent throughout the territory with the exception of Detroit, where price cutters continue to carry on the price war after a brief respite of two weeks.

Price Cutters Back

An extensive tour over the city of Chicago and suburbs shows that trackage station operators are loosening the boards that were nailed over their doors and windows recently when the major companies decided to see for themselves how the cut-price dispensers managed to get along by selling motor fuel at 9 cents a gallon, including (?) the 3-cent state tax. Some of the trackage stations have discontinued operation, temporarily, and the number of stops offering gasoline at 6 cents plus tax has dwindled to practically nothing. One cut-price station operator displays a huge "9c" over his pumps, but a closer scrutiny discloses a slight smudge in the upper right-hand corner which turns out to be the rest of the 9 9/10 cents posting. This operator announces on a streamer that the motorist is not called upon to pay the state tax as the service station operator has attended to that matter himself.

Free Commodities

Some of the larger independent refiners who operate their own stations and control others through lease and agency agreements are offering various inducements to the motorists. One of these offers a free greasing job to the purchaser of a certain quantity of gasoline or lubricating oil. Another offers free parking for every oil change, and still another offers a car washing with $1.50 greasing job. The motorist may decide whether he will pay $1.50 for a greasing job and have his car washed free, or whether he will go to the X gasoline station where they will grease his car for 49 cents. He can then have his car laundered for $1 and he has saved a penny. The "gas coupon" made its appearance in Chicago last week when an automobile supply store announced that 5 gallons of Sinclair, Standard, Texaco, Phillips or Cities Service gasoline would be given free of cost with purchases of $5 or more. Another automobile supply store is offering 100 per cent pure Pennsylvania lubricating oil at 5 gallons for $1.49, which makes the price per quart 7.45 cents. Major company brands of lubricating oils are being similarly retailed at prices ranging from 9 cents a quart to 11 cents.

Kerosene

The kerosene markets continue unchanged in price and somewhat dull. The 41-43 water white material is 2 to 2⅛ cents, and the 42-44 water white kerosene is 2⅛ to 2¼ cents. The factors which operated against kerosene demand continue strong and it is expected that this material will go to cutting certain heavy distillates for which seasonal demand is growing rapidly.

Fuel Oils and Gas Oils

The fuel oil and gas oil markets have presented the only bright spot in the refined products markets in Chicago district. While some 17½-cent low gravity fuel oil is reported from refineries outside of the district, this is invariably inferior material of extremely high cold test for which the demand is practically negligible. The upturn in the industrial demand has not yet materialized although full-time operation at one of the steel mills is indicated to turn out the steel which will be used in the construction of Chicago's $21,000,000 post office building for which excavation work has already started.

Materials Scarce

One distributor reported that he could not get a shipment of 24-26 gravity fuel oil and said that the market is tighter than it has been for a long time. One of the major refiners posted a price of 35 cents a barrel on this material, while a low of 30 cents was reported. The 22-26 fuel oil is quoted 27½ to 35 cents per barrel, and the 18-22 fuel oil at 25 to 27½ cents per barrel. The 28-30 zero fuel oil is said to be hard to obtain and the prices per barrel range from 42½ to 47½ cents. The materials which are

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Strong Recovery in Eastern Market

Groundwork for General Advance Seen but Tendency to Hold Back Refined Gasoline Market as Long as Possible to Consolidate Position

By A. E. Mockler
New York Bureau, The Oil and Gas Journal, Rooms 1919-21, No. 154 Nassau Street

NEW YORK, Sept. 7.—Heralded by an advance of 1 cent per gallon in posted prices for gasoline in New York and New England, the gasoline market in Eastern territory showed a strong recovery during the past week. The most significant development of the week was the overnight elimination of widespread price cutting in the metropolitan New York area, coincidental with the "official" 1-cent advance. Actual price mark-ups at retail stations averaged 4 cents per gallon, and stations which had been retailing established brands of motor fuel at 9 and 10 gallons for $1, tax included, restored posted price schedules at their pumps, making a general 16 cents per gallon minimum for leading brands, with some at 1 cent per gallon under this level.

Strength in tank wagon markets was paralleled by a stronger undertone in the refinery gasoline market, although the general situation was little changed. One marketer advanced his posted price for tank car deliveries a quarter cent per gallon, but in as much as this seller was already one-half cent per gallon over the price posted by some of the largest sellers, its action had little bearing marketwise, aside from indicating the probable market trend.

Although the groundwork for a general advance in refinery quotations has been well laid by developments during recent weeks, there is apparently a tendency on the part of large interests to hold the refinery gasoline market back as long as possible, in an effort to thoroughly consolidate recent gains in statistical position. In this connection it is interesting to note that Standard of New Jersey, Gulf, and The Texas Corporation are the "low" sellers in the present tank car market here, their posted prices being one-half cent per gallon under those of other leading sellers in this market.

While there is no doubt as to the beneficial effects of shutdowns in the Southwest producing fields on the position of the entire domestic industry, some interests in the East are still inclined to doubt the lasting effects of these developments. Thus while general sentiment appears to be bullish, there are still some in the trade who believe that the industry's day of reckoning with overproduction has merely been postponed, and that overproduction of crude as a vital market problem will again come to the fore in the not distant future.

Refinery Gasoline

Posted prices for U. S. Motor gasoline in tank car lots range from 5½ to 6 cents per gallon, with Richfield of New York posting 6¼ cents. The latter marketer formerly handled California gasoline almost exclusively, but is now marketing Mid-Continent gasoline to a large extent.

There was an exceptionally heavy movement in the tank car market during the latter part of the week, jobbers filling their storage to capacity, not only in anticipation of a record demand over the Labor Day week-end, which was observed as a triple holiday in many cases, but also in the belief that a half-cent mark-up in refinery prices is pending.

Stocks of gasoline held at East Coast refineries as of August 29 amounted to 4,860,000 bbls., a substantial decline from the 5,086,000 bbls. on hand at the close of the previous week. An indication that East Coast refiners are apprehensive over the steadily rising gasoline markets in other sections of the country and determined to protect their requirements is seen in the fact that refineries in this area operated at 72.2 per cent of capacity, running an average of 457,600 bbls. daily, during the week ended August 29, as contrasted with average daily runs of 447,300 bbls., and operated to but 70.6 per cent of capacity during the preceding week. This increase in operations, coming as it does at a time when runs are normally being curtailed, and on the heels of purchases of approximately 1,500,000 bbls. of gasoline in California, reflects not only bullish views as to the near term outlook for the industry, but uncertainty as well regarding the shutdowns of producing fields in the Southwest.

Tank Wagon Gasoline

Tank wagon and service station markets in the East, particularly in the New York City area, have witnessed a complete metamorphosis during the week under review. Weak and declining during the second half of August, with retail prices as low as 10 and 11 gallons for $1, including tax, the market has snapped back to posted price levels, representing advances of as much as 50 per cent in some instances. Stations which were retailing gasoline at 10 gallons for $1 a week ago are now quoting $1.50 to $1.60 for the same amount of motor fuel.

The reaction of the motoring public to this abrupt change is an interesting one. In former years, such a drastic advance in prices would have resulted in widespread protest, and threats of investigations, etc. In the present instance, however, conditions leading up to recent abnormal conditions in the market were so thoroughly understood and appreciated that the public has greeted the return to normal conditions with more or less amusement, and general comment that "the war is over." Whether the "war is over" or the present change for the better marks merely an "armistice" appears in some doubt, but the industry is inclined to proceed on the former theory.

Notwithstanding rather consistently rainy weather during the past fortnight there has been a well-sustained demand for gasoline, and volume during the past week was favorably comparable with that of previous weeks during the summer months. The vacation season is drawing to a close, and some curtailment of consumption is looked for during the closing quarter of the year, but market opinion appears to be that September gallonage will run into satisfactory totals.

Standard Oil Co. of New York, effective September 3, advanced its tank wagon and service station prices 1 cent per gallon throughout New York and New England, and this advance was followed by other principal marketers. The new posted prices in New York are 14.3 cents per gallon, tank wagon, and 16.3 cents per gallon service station, both inclusive of state tax.

The tightening refinery market has been followed by a marked curtailment of price cutting activities on the part of independent distributors, and the situation is expected to show further stabilization as the wholesale market works more closely into the hands of the larger units.

Kerosene

There has been a little improvement in kerosene demand at the refineries, and the market is a little firmer at 4¾ cents per gallon for water white in tank car lots. Selling pressure has eased off considerably, and refiners are looking for a firmer market on this product. Effective September 4, Sinclair Refining advanced refinery kerosene one-quarter cent to 5 cents per gallon.

Tank wagon kerosene prices have remained unchanged throughout the week. Gallonage is picking up a little in eastern markets.

Diesel Oil

Contract withdrawals of Diesel oil have held up fairly well locally during the past week, and the market is quiet and unchanged at $1.40 per barrel, in bulk, f.o.b. refinery terminals.

East Coast refiners, especially those specializing in Diesel oil sales to shipping interests, are watching the European situation closely, competition of Rumanian and Russian Diesel oils in European ports having had more effect on East Coast prices during recent months than have developments in the domestic situation.

Strengthening of the market position in California and at the Gulf has improved the statistical position of the East Coast Diesel oil market and has minimized the importance of off-priced offerings of Diesel oil from these points.

Lubs

Refiners are showing pronounced firmness in their price views on cylinder oils, and prices were again quoted higher on all grades during the week under review. Sellers are quoting 600 steam refined at a range of 18½ to 19 cents per gallon, up 1 cent, with 635 1½ cent higher at 20½ to 21 cents and 650 up 1 cent at 21 to 22 cents per gallon. On 600 Pennsylvania flash the market is 1 cent higher at 23 to 24 cents per gallon, with 630 flash three-quarters of a cent up at 28½ to 29 cents a gallon. Advances of 1 cent per gallon are reported on 600 Warren E, at 23 to 24 cents, and 600 Oil City E at 22 to 23 cents per gallon, and similar increases have been made on bright stocks, which are now quoted at 31 to 32 cents per gallon for light 140-150, and 30 to 31 cents for dark 140-150.

The recent upward movement in lub oil prices has tended to slacken buying somewhat, and current volume of trading is rather light, with most orders calling for immediate delivery. Buyers are inclined to hold off the market pending further developments in the situation, and evidently intend to give the new price schedule a thorough test in an effort to bring about some weakening. Eastern refiners have been producing lubs in but limited volume during the past few months, however, and the market is believed in fairly strong statistical position at the present time.

Refiners of red and pale oils report some quickening in industrial demand for these oils, and a steady increase in tank car movement is looked for as manufacturing operations get under way for the fall and winter seasons. Sellers of these oils have been successful in maintaining quotations at unchanged levels thus far in the year, and recent developments in the crude oil markets have tended to give added firmness to the price basis for red and pale oils.

Export inquiry for all grades of lubs was reported as somewhat better during the week just ended.

Fuel Oil

Eastern refiners are closely watching the production situation in the Mid-Continent area, as the price movement on Texas crude will largely tend to make the Eastern fuel oil market in the near future. The lowest price at which Gulf Coast fuel oil has been offered for shipment to the local area in recent weeks figured out slightly over 60 cents per barrel, laid down, as compared to a spot market of 70 cents at refineries in this area, and Gulf sellers are revising their price views upward as their own markets continue to strengthen.

There has been a well-sustained demand for bunker oil reported locally during the week, and all principal sellers are reported firm at the posted price level, which is the lowest in the history of the industry. A spirited selling campaign is looked for in the industrial market during the remainder of the year, and activity in this division of the trade is expected to show a substantial increase within the next few weeks.

Gas Oil

Markets were quiet throughout the week, with prices ranging 3¾ to 4 cents per gallon for 28 plus recycled oil. Refiners look for an early revival in trading, however, as jobbers are expected to begin calling for tank car deliveries of gas oil for use in fulfilling domestic oil contracts within the next several weeks.

Gas manufacturing companies are reported to be increasing their contract withdrawals somewhat, and a sharp increase in consumption from this quarter is looked for by the latter part of the month, at which time daylight saving will pass and the vacation season will come to a close.

Paraffin Wax

Spot prices for fully refined grades have not yet fully reflected the recent advances in Eastern crude quotations, but the market tone is fairly strong and traders look for a further upswing in wax prices as soon as some of the weak holders have succeeded further in liquidating some of their surplus stocks.

Domestic consumers have come into the market for wax for prompt and nearby requirements in fairly large volume, and individual transactions are reported to be running into more tonnage than has been the case for several months back. Low prices for fresh fruits, coupled with present economic conditions, have greatly stimulated home canning this season, and sales of wax for use in preserving operations have run into substantial totals.

Export inquiry for wax picked up a little during the week, with buyers seeking both crude scale and fully refined grades, and traders look for further improvement in this branch of the market during the remainder of the year.

Petrolatum

Higher producing costs resulting from recent crude price advances have been reflected in a general fractional advance in petrolatum quotations in the local market.

Sellers are quoting snow white at 7¼ cents, up one-quarter cent, with other grades one-eighth cent per pound higher as follows: Dark green, 1¾ cents; amber, 2¾ cents; extra amber, 3 cents; cream, 5¾ cents; and lily white, 6⅝ cents, all in barrels, car lots.

Pharmaceutical manufacturers, who were not in the market for supplies in their customary quantities during the summer season, have been inquiring for petrolatum in fairly large quantities during recent weeks, and sellers have booked considerable contract business calling for deliveries over the balance of the year.

Export Market

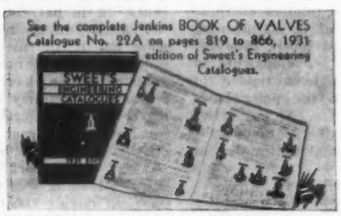
Quiet trading was again reported from the Gulf during the past week, no cargo fixtures of either gasoline or kerosene being reported in the open market. Reports from abroad to local export operators indicate that Rumania is quoting 64-66 gasoline at 1 to 1½ cents per gallon under the American Gulf price, and in view of this situation operators here

(Continued on Page 99)

Fig. 106-A Jenkins Standard Bronze Globe Valve, Screwed. For 150 lbs. steam or 250 lbs. water working pressure. Special features such as one-piece screw-over bonnet and slip-on stay-on disc holder obtainable also in angle, cross, and check patterns.

DISC HOLDER slips on or off but won't fall off

TO renew the disc in a Fig. 106-A Jenkins Standard Bronze Globe Valve is a simple matter that takes only a few moments. Slip the disc holder containing the old disc off the spindle. Slip on a new disc holder containing the disc, and the job is done. Every engineer appreciates this convenience.


See the complete Jenkins BOOK OF VALVES Catalogue No. 22A on pages 819 to 866, 1931 edition of Sweet's Engineering Catalogues.
SWEET'S

In addition, there is the exclusive advantage of the stay-on principle which you will find ONLY in Fig. 106-A. To illustrate: suppose a Fig. 106-A is installed in an overhead pipe line. Before the bonnet is removed the spindle need be given just an opening turn or so and the bonnet and trim can be removed, YET THE DISC HOLDER CANNOT FALL OFF. The Jenkins Disc is renewable. It can conveniently be removed from the disc holder just by unscrewing the disc nut. It is specially compounded for each service.

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CANADIAN FIELDS

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to be the high point of the structure, blew in with an indicated initial production of around 1,000 bbls., but speedily pinched down to a comparatively small well.

On the other hand, the Mercury area, with only a few wells so far drilled to the deep lime, is reported to actually show increased pressure. In the north end, Model Oils' No. 1, the only deep lime producer in its immediate area, for over a year steadily increased its production, and shows an exceptional proportion of recovery from a comparatively small flow of wet gas. A feature of the rapid draining of some areas is the increasing gas flow required to produce a given amount of naphtha; which means that under unrestricted conditions, naphtha recovery involves a steadily increasing waste of gas. It is claimed that one or two wells in a section would, in time, secure as large a production as a dozen or more wells and that, at an average cost of $200,000 each, the drastic restriction of drilling might in some sections of the field have saved $2,000,000 in development costs without materially affecting the ultimate crude naphtha recovery.

Imperial Drilling

In South Turney Valley, Imperial Oil, Ltd., now has only one rig active. Sterling Pacific Oil Co.'s No. 2, LSD 10, Section 33-18-2w5, is drilling below 3,669 feet. Southern Lowery's No. 3, LSD 4, Section 9-19-2w5, is still standing cemented at 5,178 feet but will later be carried to the producing horizon. South West Petroleum Co.'s No. 2, Section 8-19-2w5, was cemented some weeks ago at 5,407 feet, but future operations on this test appear problematical.

On the Lethbridge structure, southern Alberta, Texas-Imperial's No. 1 wildcat, LSD 14, Section 22-8-22w4, is drilling below 3,556 feet.

South Turner Valley

In the Mercury area, South Turner Valley, Hylo Oils' No. 1, LSD 12, Section 4-19-2w5, is reported to have drilled into the Kootenay formation at 3,900 feet and is running casing preparatory to going deeper. Miracle Oils' No. 2, LSD 16, Section 5-19-2w5, is drilling below 4,565 feet. Union Drilling Co. is handling the contract. Miracle's No. 3, LSD 11, Section 4-19-2w5, drilled by the Mercury interests, is drilling below 3,749 feet.

In the far south, Mar-Jon-Freehold's No. 1, LSD 9, Section 28-18-2w5, has resumed drilling after running casing and is making hole below 1,410 feet. Livingston Syndicate's No. 1, LSD 5, Section 34-18-2w5, is reported drilling at 2,075 feet, with Union Drilling Co. handling the contract.

Central Turner Valley

In the Central Turner Valley, McLeod Oil Co.'s No. 3, LSD 16, Section 1-20-3w5, is deepening below 5,070 feet with some additional gas already from the gray lime. Previous production was from 4,973 feet. The present flow is around 2,750,000 feet. McLeod's No. 5, drilled to 5,206 feet, is making around 25 bbls., and it is planned to carry No. 3 a little deeper, after which No. 5 will also be deepened. The McLeod wells are reported making an aggregate of around 75 bbls. from the deep lime.

Moose Mountain Wells

Considerable attention is now being given to the Moose Mountain area, in the foothills north and west of the Turner Valley Field. In this area, Graystone Consolidated Petroleums, Ltd., some time ago took over the old Signal Hill Oil Co.'s No. 2, LSD 9, Section 34-23-5w5, and is now deepening in a hard formation below 4,193 feet. A show of gas was encountered around 4,180 feet, shortly after resuming work.

On another portion of the same structure, Elbow Oils' No. 1, LSD 11, Section 35-22-5w5, has cleared hole of lost tools after a difficult fishing and sidetracking job, and is preparing to go deeper from 3,184 feet.

Farther south and east, in the direction of the Waite Valley, Cotton Belt's No. 1 wildcat, LSD 5, Section 21-21-4w5, drilling on Fisher Creek, is making hole around 1,795 feet.

The three tests are in an almost north and south line west and southwest of Calgary. The old Moose Mountain structure first attracted attention in 1914 when Moose Mountain Oil Co.'s No. 1 got a good show of green crude. This was shot away, but Moose Mountain's No. 2 was started. No further work was done till Signal Hill Oil Co. some years ago subleased a portion of the Moose Mountain acreage, and started Signal Hill's No. 2 in the same section as Moose Mountain's No. 2. This test has now been drilling for five years or more encountering good shows of light crude in the upper horizons around 3,907 and 4,167 feet. This is the northernmost of the three tests. Elbow's No. 1 is located about 6 miles due south of Graystone's Signal Hill No. 2, on a block of acreage covering a widening of the southerly end of the Moose Mountain structure, just south of Elbow River, and near the southwest corner of the Sarcee Indian Reserve. Cotton Belt's No. 1 is on Fisher Creek about 4 miles southeast of Elbow's No. 1, on a northerly extension of the Waite Valley structure. It is on a different fold from the two other wells, and farther east of the mountains.

Tests in the Foothills

On the Moose Dome, it is reported that Moose Oils' No. 1, LSD 16, Section 29-22-6w5, will be finished by contract. The test has been standing at 2,835 feet, after getting a flow of wet gas in the Devonian. Tools are frozen in the hole. The test started in the Madison lime and got the Devonian at around 550 feet.

In the southern foothills, Weymarn Petroleums' No. 2, LSD 5, Section 7-6-1w5, on the Pincher Creek structure is reported drilling below 3,415 feet.

On the High River-Aldersyde structure, Ranchmen's Gas & Oil Co.'s No. 1, LSD 16, Section 13-20-29w4, is drilling below 5,035 feet.

Border Fields

On the Twin River structure, near Lethbridge, Parco-Nordon's No. 1, LSD 16, Section 34-1-20w4, is drilling below 2,400 feet.

In the Milk River area, Commonwealth Petroleums' No. 1, LSD 9, Section 9-3-15w4, is drilling in the Devonian lime below 4,960 feet.

East of Coutts, Mayland Southern's No. 1, LSD 13, Section 4-1-9w4, is straightening hole from about 1,815 feet. The test bottoms at 1,980 feet and got a strong gas flow between 1,807-90 feet.

Alberta Pacific Consolidated's No. 1, on the Spring Coulee Structure, LSD 12 Section 15-4-23w4, is reported waiting for a shot.

Hudson's Bay Tests

In the Keho Lake district, southern Alberta, Hudson's Bay Oil & Gas Co.'s No. 1 Keho, LSD 2, Section 17-11-22w4, is unofficially reported drilling below 4,395 feet. In the Castor district, Hudson's Bay's No. 1 Paintearth, LSD 5, Section 27-39-15w4, is still fishing at 4,675 feet.

Blood Reserve Test

An important new test is likely to be started this fall on the Blood Indian Reserve in southern Alberta by Commonwealth Petroleums, Ltd., of Calgary. The company some years ago blanketed extensive acreage on this structure, not far from Lethbridge, and has since been carrying on extensive core drilling operations to locate the structural high. The most recent test got the coal seam marker in the Belly River formation at around 600 feet, indicating the highest point on structure; while outcroppings to the east indicated a sharp dip, highly favorable to confined production. It is probable Commonwealth Petroleums' cable tool rig now drilling on the Milk River structure will be moved to the new location, and the Milk River test changed to diamond drill for deeper drilling.

Ribstone Field

In the Ribstone Field, east central Alberta, Commonwealth-Algonquin's No. 2, LSD 5, Section 16-45-1w4, got the limestone contact at 2,200 feet, after failing to get commercial production in the upper sand. The test is fairly close to the Meridian wells, which are producing heavy crude from the upper sands. It may be carried deeper for a test of the lime.

Red Coulee Field

On the Montana end of the international Red Coulee structure, Alberta Drillers' No. 1 Farbo, SE, Section 3-37-4w, is reported at 2,530 feet and waiting for a shot. It is reported to have got good shows in the upper sands and deepened into water.

On the Alberta end, it is unofficially reported that Ko-Tops Oils' No. 1-A, LSD 1, Section 2-1-17w4, which has been standing at 259 feet will be taken over and completed by other interests.

May Test Kinsella Field

It is reported that Northwestern Utilities, Ltd., of Edmonton is planning to test its gas acreage in the Kinsella Field next spring. The Kinsella Field was opened several years ago by a Duluth syndicate whose No. 1 test in LSD 8, Section 29-48-10w4, got a strong flow at 2,085 feet. This well has since been shut in, and no work has been done on No. 2, which was located in LSD 1, Section 11-48-10w4. The Duluth interests planned to market the gas to Tri-Cities Utilities, Ltd., of Regina, which secured tentative franchises for Regina and Saskatoon but failed to secure the sanction of the burgesses, while the Alberta government also refused to sanction export of the gas from the province. Northwestern Utilities, Ltd., has secured as an extension of the Viking Field, and is reported preparing to move two rigs from the Viking area to test its Kinsella holdings.

Saskatchewan Test Gets Salt

In eastern Saskatchewan, Simpson Oil Co.'s No. 1 wildcat, Section 9-29-25w2, near Simpson, drilled into a salt bed at around 3,500 feet. A second test for oil may be started. The test has now been drilling for several years. Some small shows of oil and gas were met around 2,500 and 3,000 feet, but no commercial production.

British Columbia Test

In British Columbia, Okanagan Oil & Gas Co.'s No. 1, Section 2-26-Osoyoos, near Kelowna, has been cleaned out practically to bottom, around 1,705 feet, and will set casing and resume drilling.

Quebec Drilling

In Quebec, the only active test for oil and gas is Hope Engineering Co.'s No. 1 which is drilling at St. Denis, in St. Hyacinthe County, 2 miles east of the Richelieu River. There have been several delays due to fishing jobs, and the test is now down about 2,100 feet.

Last fall a number of shallow structure tests were drilled at Lanoraie, and some geological and geophysical work is being done by holders of large tracts of mineral rights. Dr. W. A. Parks has completed his further investigation of the St. Lawrence Valley oil and gas possibilities and his report will probably be issued some time in October.

Ontario Drilling

In Norfolk County, Ontario, Acme Gas & Oil Co.'s No. 8, Blakely farm, Middleton Township, has been brought in with an initial gas flow of 250,000 feet. Acme's No. 9 is drilling on the Swinn farm, same township. All eight wells drilled by the Acme company in this area have been producers, with aggregate open flow in excess of 2,750,000 feet. Dominion Natural Gas Co. has contracted to take all production and is now laying a 6⅝-inch pipe line into the field.

In Kent County, Southern Ontario Gas Co.'s new lake well on the George H. Dawson farm, Lot 187, Talbot Road, Romney Township, is at 690 feet and running casing. Olga Oil & Gas Co.'s No. 2, S half, Lot 20, Concession 8, Raleigh Township, is reported drilling at 700 feet.

In Midlesex County, Union Gas Co.'s No. 1, Lot 7, Concession 5 South, Ekfrid Township, is drilling below 1,100 feet after runing casing to 1,000 feet.

ROCKY MOUNTAIN AREA

(Continued from Page 43)

locations. One is its No. 1 Gadbois, C SW SE, Section 24-6n-61, an offset on the east to the Continental's No. 1 Gadbois, and the other is its No. 2 Gadbois, C NE NW, Section 25-6n-61, an offset on the south to the Continental's drilling well.

The Aztec Corp., of which Robert Miller Taylor is head, has let the contract to the Sultan Corp., a Colorado subsidiary of the Sultan Drilling Co., of Oklahoma, for its No. 1 State, C NE NE, Section 16-6n-61, 3 miles to the northwest of the two producing wells. The drilling company has an interest in the operation. The Continental Oil Co. has agreed to furnish tankage and the Aztec company has contracted a minimum of 500 bbls. and a maximum of 5,000 bbls. of crude a day to the Continental company. W. R. Ramsey of Oklahoma has acquired the lease on the southeast quarter of this section for $32,000, of which $16,000 will go as bottom-hole money for the Aztec operation and the remainder is to be paid out of production. This deal calls for the starting of a well within four months of the completion of the Aztec well. The Aztec test will be a rotary operation. A derrick 122 feet high has been shipped and five trucks of equipment are being moved in from Oklahoma.

The Greeley Oil Co., which was formed to take over the George A. Vincent and C. D. Cunningham holdings, has completed cellar for its No. 1 Gadbois, C NW NW, Section 25-6n-61, and contract has been awarded to Manning & Terry, Inc. Equipment is starting from McPherson, Kans.

The Tulsa-Fort Morgan Oil Co. (R. L. Roome and others) has made a location in the C SE SW, Section 18-6n-61, on the Morgan County side, an offset on the north to the Independent Oil & Refining Co.'s No. 1 Schmidt, for which derrick is up. The Tulsa-Fort Morgan location is on the Emil Smith tract. The Independent's operation in the C NE NW, Section 19-6n-60, is reported delayed by litigation over the terms of the agreement as to whether a certain date named is the spudding or completion date. It is on a tract leased from the Platte Valley Petroleum Co.

These operations are making necessary some offsetting. The Reiter-Foster company is obligated to drill another well on the Patterson tract in the C NE SW, Section 24-6n-61, to offset Continental's No. 1 Gadbois. The Reiter-Foster company also has unloaded rig at Orchard for a well on the Wilson tract, east of the discovery, but location has not yet been made pending results in some of the drilling wells.

One other well in Weld County, outside of the Greasewood area, is the Retter Oil Co.'s No. 1 Smith, E half, Section 14-1n-66, 30 miles to the southwest of the Greasewood operation. This well is bottomed at 1,171 feet and is cleaning out to run the 12½-inch to the top of a sand which is making a good show of both oil and gas. This well was started by George E. (Dad) Retter several years ago but was idle up to a few weeks ago. The Continental Oil Co. and the Midwest Refining Co. have taken blocks to the north and northwest of the operation.

Adams County

Hills Dome Oil Lease Development's No. 1 Hills, SE cor., Section 27-3s-64, Watkins district, is standing at 3,720 feet and will resume shortly after September 15. Carl Slatt, brother of the late Nettie M. Slatt, has been appointed administrator of the estate and general manager.

Morgan County

Indian Territory Illuminating Oil Co.'s No. 1 State, C NE NE, Section 16-1n-57, Fort Morgan district, is shut down at 5,295 feet while a water well is being drilled. It has been delayed by a water shortage and this is an important question in northeastern Colorado. The South Platte River runs through the district, but there is a legal question, both state and federal, involved as to whether this water can be used on account of the complicated irrigation laws.

The Indian Territory well is about 35 miles to the southeast of the Greasewood operation. James H. Gardner of Tulsa made several airplane flights over the entire area the past week. He is quoted as saying that from the air rim rocks surrounding the structure are easily visible and that the Pierre shale within the rim and sandy ground outside the escarpment could be plainly distinguished. He estimated the area at 500,000 to 600,000 acres and the structure at least 18 miles long and 10 miles wide.

Colorado Associated Oil Co.'s No. 1 Pumphrey, C SE SE, Section 14-4n-58,

on the North Fort Morgan structure, is building rig. Olson Drilling Co. has the contract.

Badger Creek Oil & Gas Co.'s No. 1 Kent, SW cor., Section 2-2n-57, Badger Creek Dome, is bottomed at 1,200 feet to deepen and cement cellar and run the 12½-inch. Rotary will be installed at around 2,500 feet.

Lincoln County

Eastern Colorado Oil Co.'s No. 1 State, SE cor. NW, Section 36-14s-57, near Hugo, is bottomed at 3,425 feet and fishing for tools.

Arapahoe County

MacDeb Drilling Co.'s No. 1 Fitzsimmons, NE, Section 7-4s-66, near Aurora, has resumed with new crew in charge. Total depth is 5,835 feet and the 4¾-inch, which is 50 feet off bottom, will be pulled in an effort to recover lost tools.

Jefferson County

Ruby Hill Oil & Gas Co.'s No. 1 Braden, SE cor., Section 24-4s-69, near Denver, is drilling out plug after cementing the 6⅝-inch at 3,930 feet.

Park County

South Park Oil & Gas Co.'s No. 1 Esche, Muleshoe Dome, is bottomed at 2,460 feet in the top of the Dakota formation, and is raising 8¼-inch to underream and lower to 2,440 feet where it will be cemented for a water shutoff. The South Park Oil Co.'s No. 1 Milligan, NE cor. SE, Section 13-8s-76, Jefferson district, is drilling at 2,408 feet in dark gray lime and carrying the 6⅝-inch at 2,410 feet.

Rio Blanco County

Magnolia Petroleum Co.'s No. 1 Maddock, C NW SE, Section 9-2s-96, Piceance Creek, is resuming at 1,405 feet in gray shale. The California Co.'s No. 1 California-Raven, NW SE, Section 30-2n-102, Rangely Dome, is drilling at 1,936 feet.

WYOMING

Five completions, of which four were producers, were reported in Wyoming. Utah Southern Oil Co.'s No. 3 Government, NE cor. SW, Section 29-56-97, on the Garland Dome in Big Horn County, was drilled to a total depth of 4,326 feet, 402 feet in the Madison lime pay, and gauged 1,500 bbls. of oil and 25,000,000 feet of gas in its present conditions. A string of 3-inch tubing has been run and set and well is being cleaned out preparatory to testing. This is the second producer in the Madison lime on the Garland Dome and extends the proven area a mile to the northwest of Ohio Oil Co.'s No. 1 Easton, the discovery well in that formation, which was rated at better than 5,000 bbls. per day.

Producers & Refiners Corp.'s No. 2, NW SE NW, Section 33-34-92, on the Muskrat Dome, in Fremont County, is being plugged to abandon at a total depth of 4,810 feet after plugging back from 6,081 feet. It went through the big gas sand in the upper Frontier, which was followed by a salt water sand and two dry sands. It had water at around 5,573 feet in what is supposed to be the first Dakota. It probably went through the Dakota series. The location is half a mile to the northwest of the discovery well.

Continental Oil Co.'s No. 50 Whiteside, NW SW SW, Section 9-33-76, Big Muddy Field, was completed in the Lakota sand at 4,370-92 feet and made 250 bbls. initial. After being tested it will be shut in. This is the second Lakota test drilled and is about equal to the well drilled by the Ohio Oil Co. on this same section last year.

Two completions in the Osage Field in Weston County were reported. Wytex Oil Co.'s No. 7 Logan McCullough, NW SW NE, Section 23-46-64, on the western side of the field, flowed 100 bbls. in 24 hours from sand at 1,796-1,825 feet after being shot. Egaso Operating Co.'s No. 14, CEL SE NE, Section 17-46-63, on the east side of the field where the sand is shallow, touched the sand at 347 feet and is rated at 5 bbls. per day.

Natrona County

Midwest Refining Co.'s No. 11 Middy, C NE NE, Section 23-35-79, Midway Dome, is cleaning out at 4,944 feet with rotary tools. It will be redrilled to below the Muddy sand and recemented before attempting to again test the Muddy which gave indications of making a good well.

W. B. Look and James Hayes are moving in for a test on the NW SE, Section 13-33-79, half a mile due north of the Casper Country Club house. It is on acreage held by the Quintet Oil Co., composed of employes of the Casper Daily Tribune. Clyde Brennan has the contract. H. V. Meabon and others drilled a well just west of the clubhouse several years ago and had shows of oil and gas at 3,265 and 3,515 feet, but ran into salt water.

Summitt Oil Co.'s No. 1 Trevett, NW cor., Section 21-33-80, is drilling at 1,400 feet. The 8¼-inch was set at 1,300 feet.

Cuyler Oil Co.'s No. 1 Heery, SW SE SE, Section 23-36-85, Powder River, is shut down at 2,285 feet. It topped the Muddy at 2,060 feet.

Converse County

Otto Olston and others' No. 1 Carey Ranch, Section 6-32-74, Box Elder Basin, is fishing for tools. This is a joint operation with the Benzol Corp. of Chicago. These interests are reported planning to drill a test on the Brubaker Ranch where an oil show was reported in a shallow test drilled 20 years ago, and other tests on the Morton, Hamilton and Balsley Ranches. The extreme locations will be about 11 miles apart with the Carey Ranch test near the center. John Ackard's No. 1 Morton, SE, Section 24-33-72, is shut down at 1,522 feet.

Niobrara County

Indian Petroleum Co.'s No. 1, NE NW NE, Section 7-35-65, Lance Creek, has sidetracked lost tools and is cleaning out at 4,145 feet, with a total depth of 4,170 feet. It is near the top of the objective Sundance and is showing some gas.

Weston County

Chadron-Osage Oil Co.'s No. 14, SE cor. SW, Section 14-46-64, Osage Field, is drilling at 900 feet, and Tom Don and others' No. 3, NW SW SE, Section 23-46-64, is drilling at 500 feet. Riggs Oil Co.'s No. 1, SE cor. NE, Section 16-46-64, is drilling at 2,000 feet, and Bradley-Manewal's No. 10, SE NW, Section 20-46-63, is drilling at 1,180 feet. Central Oil Co.'s No. 1, NW cor., Section 26-46-64, is setting the 8¼-inch at 1,300 feet, and Carl Cundy's No. 2, NW NE NE, Section 31-36-64, is drilling at 100 feet.

Washakie County

Ohio Oil Co.'s No. 1 Strothers, SW SE NW, Section 19-45-92, Neiber Dome, is bottomed at 7,325 feet on top of the second Frontier and is standing with the 7-inch cemented at 7,260 feet. It will stand for about eight days before resuming. The first Frontier showed some gas. The depth of this well probably is exceeded only by Resolute Oil Co.'s well on Badger Basin and by the Rollestone well drilled in Colorado several years ago.

Park County

Midwest Refining Co.'s No. 24 Rosenberg, NE SE NE, Section 26-58-98, Frannie Dome, is drilling at 1,988 feet in blue shale.

Big Horn County

Portland Association, Inc.'s No. 1, SE NE SE, Section 29-56-97, Garland Dome, is bottomed at 4,304 feet and making 30,000,000 feet of gas with a pressure of 1,800 pounds. Cores showed oil saturation. It has been delayed by a fishing job. It is bottomed in the Madison and is an offset to Ohio Oil Co.'s No. 1 Easton, the discovery well in that horizon.

Sheridan County

R. & D. Oil Co.'s No. 1 Mock, NW cor. SE, Section 21-57-87, Smith Creek structure, is shut down at 940 feet. The first objective is expected at 1,000 to 1,100 feet.

Fremont County

Kinney-Coastal Oil Co.'s No. 1 Chatterton-Weeks, C SW NE, Section 22-3n-1w, Pilot Butte, is drilling at 2,814 feet, near the top of the third Wall Creek. The first objective is the Muddy sand at around 3,600 feet. Ward Oil & Gas Co.'s No. 1, NE cor., Section 28-34-90, Dutton Basin, is drilling at 2,200 feet in or near the top of the second Wall Creek, where it had a show of oil and gas. The first sand had water.

Carbon County

Midwest Refining Co.'s No. 27 Union Pacific, NW SE SE, Section 11-20-81, Elk Mountain, is drilling at 3,680 feet in gray shale. Prairie Oil & Gas Co.'s No. 1, SE cor. SW, Section 29-27-89, Bunker Hill, is drilling at 3,655 feet in blue shale. Producers & Refiners' No. 4, SW cor. SE, Section 7-26-89, Wertz Dome, an old well to be deepened to the horizons below the gas, is preparing to resume at 3,398 feet. It is rigging up. The 6¼-inch is at 3,365 feet.

MONTANA

Toole County

Oil Drillers, Ltd.'s No. 1 Farbo, NE SE SE, Section 3-37-4w, in the Border Field, was completed as a gas well with an initial production of 500,000 feet and a total depth of 2,577 feet. The Sunburst sand was cut at 2,420-50 feet.

Glacier County

One well was completed in the Cut Bank Field in L. B. O'Neil, trustee's No. 1 Schneider, C NE SE, Section 32-36-5w, at a total depth of 3,000 feet. Initial production was 1,000,000 feet of gas in 24 hours. It is on the western side of the field and half a mile southwest of the nearest gas well. It is much lower than the producing wells to the east and apparently near the edge of the structure on that side. The status of other O'Neil wells follows: No. 1 Teterug, CSL SW, Section 26-36-5w, is drilling at 500 feet, and No. 1 Hendrickson, C SE, Section 35-36-5w, is drilling at 900 feet. No. 1 State, C NE, Section 9-35-5w, is drilling at 1,100 feet, and No. 1 Peterson, C, Section 21-35-5w, is drilling at 600 feet. No. 2 Michaels, C SW NE, Section 33-56-5w, is drilling at 500 feet, and No. 1 State, C NE NW, Section 11-35-5w, is drilling at 2,680 feet. No. 2 State, C NE SW, Section 33-36-5w, is drilling at 2,700 feet.

R. C. Tarrant, successor to the Montana Utilities Co., in his No. 1 Hogland, NW cor. SW, Section 13-34-6w, spudded with machine and is rigging up standard tools. Fulton Petroleum Co.'s No. 1 Blackfeet, SW NE NE, Section 28-36-12w, Milk River district, is drilling below 2,600 feet.

Fergus County

A new location is H. C. Rowland's No. 1, SE SW, Section 12-17-23, Black Butte district. Materials are being moved in. Melton Corp.'s No. 1 Fenholt, SW cor., Section 24-21-17, Winifred district, is drilling at 2,825 feet.

Rosebud County

Prairie Oil & Gas Co.'s No. 1-XX, Contract 3, NE SW NW, Section 26-10n-39, Porcupine Dome, is bottomed at 2,135 feet and mixing hematite to mud off water. This operation was started with rotary rig in an effort to get through the heavy water pressure which has defied former attempts with cable tools.

Liberty County

California Co.'s No. 1 Eleanor, SE SE, Section 11-33-6e, Utopia district, is drilling at 3,233 feet. Liberty Gas Co.'s No. 1 McDowell, C SE SW, Section 13-36-5e, Bear's Den, is drilling at 2,280 feet, and G. G. Howard's No. 2 Schoonover, C SE NE, Section 13-36-5e, is spudding at 50 feet.

Teton County

California Co.'s No. 1 Sullivan, NW NE NW, Section 34-27-7w, Bynum district, is drilling at 1,924 feet.

Carbon County

Ohio Oil Co.'s No. 1 Chapman, C SW SW, Section 2-7s-21, Dry Creek, is drilling at 3,412 feet, and cellars have been completed for No. 2 Montana Industrial, C NW NE, Section 11-7-21, and No. 2 Souders, C NE SW, Section 2-7-21. Carbon Oil & Gas Co.'s No. 1 Armstrong, SW cor. NW, Section 7-7s-22, is drilling at 4,750 feet supposedly near the top of the second Frontier. There was considerable gas in the first Frontier.

Pipe Line Runs

Average daily pipe line runs in week ending September 5:

WYOMING

Salt Creek	24,470
Big Muddy	1,760
Byron	5
Dallas-Derby	310
Dutton Creek	....
Elk Basin	560
Ferris	....
Frannie	40
Grass Creek	1,960
Hudson	310
LaBarge	1,380
Lance Creek	770
Lost Soldier	3,010
Lovell	....
Oregon Basin	1,230
Osage	1,180
Rock River	1,870
Polson Spider	220
Simpson Ridge	50
South Casper	....
Teapot	10
Warm Springs	90
Total Wyoming	39,225

MONTANA

Buckley-Border	600
Cat Creek	920
Dry Creek	340
Kevin-Sunburst	4,420
Lake Basin	70
Pondera	1,550
Total Montana	7,900

COLORADO

Florence	330
Fort Collins	900
Iles	1,070
Moffat	350
Orchard	680
Rangely	20
Tow Creek	300
Walden	40
Total Colorado	4,190

NEW MEXICO

Rattlesnake	810
Hogback	530
Table Mesa	70
Artesia	195
Cap Rock	200
Getty	....
Hobbs	37,075
Jal	1,106
Lea City	2,115
Eunice	475
Total New Mexico	42,576
Total Rocky Mountain area	93,891
Total previous week	92,432
Difference	1,459

NORTH AND WEST TEXAS

(Continued from Page 26)

bbls. per day flowing through 2-inch tubing.

COMPLETIONS IN NORTH CENTRAL TEXAS

Archer County

Frank J. Darr's No. 2 Belle Lyles, dry and abandoned, total depth 1,662 feet. Frank Hutchison's No. 1 Dycus, dry and abandoned, total depth 1,410 feet. Shappell Oil Co.'s No. 1 Ferguson, dry and abandoned, total depth 4,006 feet.

Clay County

Premier Oil & Gas Co.'s No. 1 Thornberry, temporarily abandoned, location.

Wichita County

J. L. Swaner's No. 4-B Parker, dry and abandoned, total depth 1,284 feet.

Young County

C. E. Beavers and others' No. 8 Belknap, dry and abandoned, total depth 742 feet. A. B. Bessey's No. 1 Terrell, dry and abandoned, total depth 704 feet. O'Bracher's No. 1 Finch, dry and abandoned, total depth 850 feet. Mason and Fitzgerald's No. 2 Terrell, temporarily abandoned location. George Mollenkoph's No. 6 Larimore dry and abandoned, total depth 732 feet. Routon and Lowe's No. 1 Terrell dry and abandoned, total depth 692 feet. H. Shamlin's No. 1 Donald, dry and abandoned, total depth 805 feet. R. C. Turner's No. 1 McGee, dry and abandoned, total depth 563 feet. R. J. Watson's No. 2 Terrell temporarily abandoned location. Brazos River Gas Co.'s No. 1 Cox temporarily abandoned, total depth 3,359 feet.

SHIPMENTS THROUGH TRUNK LINES

Company, size, location—	Bbls.
Atlantic, 10", Houston	21,745
Gulf, 10", Ranger	18,772
Humble, 2-8", San Angelo	23,974
Humble, 10-12", Comyn	50,723
Illinois, 2-8", Del Rio	26,905
Magnolia, 8", DeLeon	11,379
Pasotex, 8", El Paso	10,882
Shell, 10", Cushing, Okla.	40,594
Shell, 10", Houston	5,801
Texas, 12", Houston	7,527
Total	218,302

SHIPMENTS TO REFINERIES

Burford Ref. Co., Pecos	5,231
Cosden Ref. Co., Big Spring	9,488
Coltex Ref. Co., Colorado	8,065
Greatwestern Ref. Co., Big Spring	1,770
Continental Ref. Co., Pyote	1,264
Wickett Ref. Co., Wickett	301
Total	26,119

SHIPMENTS BY TANK CAR

Shell Pet. Corp. from McCamey	381
Big Lake Oil Co. from Texon	1,000
Total	1,381
Total daily average production	294,612
Total daily average distribution	245,802
Daily average from storage	41,180

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HOUSTON	1119 Electric Bldg.	PHILADELPHIA,	2615 "1616" Walnut St. Bldg.
TULSA	2406 Exchange Bank Bldg.	BOSTON	1517 Consolidated Gas Bldg.
BIRMINGHAM	1536 Fiftieth St., N.	SAN FRANCISCO	1054 Rialto Bldg.
CHICAGO	2128 Old Colony Bldg.	SEATTLE	4323 Smith Tower
DETROIT	1514 Lafayette Bldg.	LOS ANGELES	1323 Pacific Mutual Bldg.
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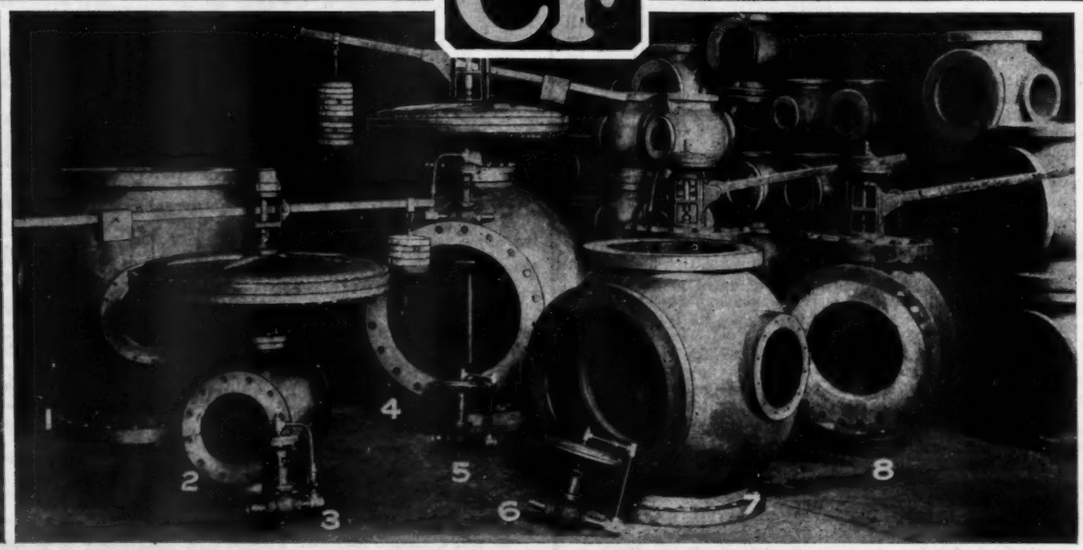

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EAST CENTRAL TEXAS

(Continued from Page 25)

'85 bbls. per hour through three-quarters-inch choke.

Rusk County

E. L. Chapman's No. 2 Russell, top pay 3,654 feet, total depth 3,655 feet, initial production 65 bbls. per hour through nine-sixteenths-inch choke. Humble Oil & Refining Co.'s No. 38 Crim, top pay 3,600 feet, total depth 3,634 feet, initial production 100 bbls. per hour through three-quarters-inch choke. Same company's No. 42 Crim, top pay 3,574 feet, total depth 3,593 feet, initial production 100 bbls. per hour through three-quarters-inch choke. Lewis Production Co. and Selby Oil & Gas Co.'s No. 1 Bean, top pay 3,594 feet, total depth 3,623 feet, initial production 100 bbls. per hour through open tubing. Magnolia Petroleum Co.'s No. 1 Barton, top pay 3,708 feet, total depth 3,718 feet, initial production 235 bbls. per hour through open tubing.

Mills Bennett's No. 7 Brightwell, top pay 3,596 feet, total depth 3,620 feet, initial production 130 bbls. per hour through three-quarters-inch choke. Gulf Production Co.'s No. 7 Jarnigen, top pay 3,693 feet, total depth 3,703 feet, initial production 110 bbls. per hour through three-quarters-inch choke. Humble Oil & Refining Co.'s No. 43 Crim, top pay 3,580 feet, total depth 3,593 feet, initial production 74 bbls. per hour through three-quarters-inch choke. Nat Hunter's No. 2-A Buntyn, top pay 3,618 feet, total depth 3,641 feet, initial production 300 bbls. first hour through 2½-inch tubing. Wheelock and Collins' No. 1 Wells, top pay 3,651 feet, total depth 3,701 feet, initial production 100 bbls. first hour through 2½-inch tubing. Golding & Murchison's No. 1 Fain, top pay 3,590 feet, total depth 3,625 feet, initial production 165 bbls. per hour through open tubing. Gulf Production Co.'s No. 4 Murphy, top pay 3,733 feet, total depth 3,743 feet, initial production 120 bbls. per hour through open tubing.

Humble Oil & Refining Co.'s No. 5 Blackwell, top pay 3,640 feet, total depth 3,654 feet, initial production 154 bbls. per hour through tubing. Same company's No. 7 Blackwell, top pay 3,641 feet, total depth 3,651 feet, initial production 46 bbls. in 30 minutes through open tubing. Same company's No. 1 Crim, top pay 3,780 feet, total depth 3,786 feet, initial production 85 bbls. per hour through three-quarters-inch choke. Same company's No. 1 Holt, top pay 3,750 feet, total depth 3,775 feet, initial production 85 bbls. per hour through three-quarters-inch choke. Same company's No. 2-B Holt, top pay 3,782 feet, total depth 3,793 feet, initial production 75 bbls. per hour through three-quarters-inch choke. Same company's No. 4 Key, top pay 3,766 feet, total depth 3,772 feet, initial production 95 bbls. per hour through three-quarters-inch choke. Same company's No. 4 Silvey, top pay 3,768 feet, total depth 3,774 feet, initial production 110 bbls. per hour through three-quarters-inch choke. Same company's No. 4 Thompson, top pay 3,673 feet, total depth 3,698 feet, initial production 83 bbls. per hour through 1-inch choke. Same company's No. 5 Wooley, top pay 3,648 feet, total depth 3,668 feet, initial production 130 bbls. per hour open through tubing.

Hunt Oil Corp.'s No. 1-D Fair, top pay 3,637 feet, total depth 3,643 feet, initial production 235 bbls. per hour open through tubing. Lion Oil & Refining Co.'s No. 5 Brooks, top pay 3,713 feet, total depth 3,730 feet, initial production 50 bbls. per hour through open tubing. Stanolind Oil & Gas Co.'s No. 4 O'Quinn, top pay 3,810 feet, total depth 3,815 feet, initial production 156 bbls. in 1¼ hours through open casing and tubing. Grady Vaughn's No. 1 Alford, top pay 3,806 feet, total depth 3,810 feet, shut in without gauge. Etnyre Petroleum Corp.'s No. 1 Giles, top pay 3,755 feet, total depth 3,645 feet, initial production no gauge, shut in.

Humble Oil & Refining Co.'s No. 1 Thompson, top pay 3,608 feet, total depth 3,613 feet, initial production 124 bbls. first hour through 1-inch choke. Same company's No. 1 Walker, top pay 3,634 feet, total depth 3,656 feet, initial production 103 bbls. per hour through open tubing. Imperator Oil Co.'s No. 1 Cox, top pay 3,662 feet, total depth 3,774 feet, initial production shut in, no gauge. Imperator Oil Co.'s No. 1 Johnson, dry and abandoned 3,865 feet. Magnolia Petroleum Co.'s No. 1 Mason, top pay 3,623 feet, total depth 3,639 feet, initial production shut in, no gauge. A. W. Phillips' No. 1 Deason, top pay 3,642 feet, total depth 3,728 feet, initial production shut in, no gauge.

Thompson & Bean's No. 1 Alford, top pay 3,684 feet, total depth 3,592 feet, initial production 65 bbls. in 5 hours on pump. Ward Oil Co.'s No. 3 Thrash, top pay 3,667 feet, total depth 3,812 feet, initial production 60 bbls. per hour through one-half-inch choke. Sun Oil Co.'s No. 2 Henson, top pay 3,673 feet, total depth 3,682 feet, initial production shut in, no gauge.

Smith County

H. L. Hunt's No. 5-D Fair, top pay 3,660 feet, total depth 3,675 feet, initial production 300 bbls. per hour through open tubing. The Texas Company's No. 3 Wilson, top pay 3,664 feet, total depth 3,670 feet, initial production 120 bbls. per hour through 1½-inch choke. Gulf Production Co.'s No. 1 Wylie and others, top pay 3,692 feet, total depth 3,702 feet, initial production 152 bbls. per hour through open tubing.

PRESIDENT L. B. DENNING ON LONE STAR'S POSITION

DALLAS, Tex., Sept. 7.—L. B. Denning, president of the Lone Star Gas Corp., referring to a statement that the district court at Waurika, Okla., had appointed a receiver for the property of Lone Star Gas Co. in Oklahoma upon application of Governor Murray, alleging evasion of taxes and discriminatory rates, and that the company intended to abandon its public service in Oklahoma and remove its property from the State, said:

"We are informed that upon this ground alone the court granted a restraining order and appointed a temporary technical receiver who has not taken possession and is not to take possession unless the company attempts to abandon its public service obligations and remove its property from the State.

"Of course the allegation as to abandoning public service obligations and removing property are wholly false. All rate schedules issued by the company have been filed with and approved by the State Corporation Commission. All taxes have been paid as assessed by the duly constituted taxing authorities.

"Lone Star Gas Co. has very little property in Oklahoma not engaged in interstate traffic. Community Natural Gas Co., distributing subsidiary of Lone Star Corp., supplies about 8,000 consumers, this being the entire public service obligation in the State as compared with 365,000 consumers outside the State.

"Action of the governor is regarded here as an unwarranted and illegal attack upon the company in advance of the public hearing on its rate scheduled before the corporation commission which is set for September 14. The policy of the company will be to resist all such attacks. We are confident of successful termination of the litigation. Meanwhile, we are operating our property in usual and normal way."

KANSAS RATE TO U. S. COURT

WASHINGTON, D. C., Sept. 7.—The United States Supreme Court has received an appeal in the Kansas City gas rate case to determine the reasonableness of a rate of 40 cents per 1,000 feet for natural gas delivered to that city by Cities Service Gas Co. The Cities Service company holds that the lower court erred in not finding the 40-cent rate reasonable as adjudicated by the Supreme Court of Kansas in the so-called Wichita case; also by holding that the plaintiff had not exhausted its administrative remedy because it failed to adduce evidence as to the reasonableness of the rate.—C. E. K.

WILDCAT OPERATIONS IN WEST TEXAS

(Continued from Page 26)

Penny & Posey's No. 1 Justice, 1,980 ft. from S and 1,650 ft. from E of Sec. 25, Blk. 6, H.&G.N. Sur. (3,500-ft. cable tool test) ..... Total depth 3,202 ft.

HOWARD COUNTY

Green O. & R. Co.'s No. 1 Denman, 990 ft. from S and 2,310 ft. from W Sec. 14, Blk. 30, Twp. 1s, T.&P. Sur... Spudded and shut down.
Merrick & Lamb's No. 2 Chalk, 990 ft. from the N and W lines of Sec. 135, Blk. 29, W.&M.W.R.R. Sur. .... Drlg. 237 ft.

IRION COUNTY

Davis et al's No. 1 Suggs, 1,560 ft. from S and 925 ft. from W Sec. 3,081, Blk. 28, H.&T.C. Sur. ..... Underreaming 10-in. csg.; total depth 2,477 ft.
Denny & Andrews' No. 1-A Tankersley, 200 ft. from S and 2,000 ft. from E of Sec. 709, J. P. Imhoff Sur. ... Shut down 463 ft.
Ellis et al's No. 1 Nutt, 1,350 ft. from N and 450 ft. from E of Sec. 694, Kheikenholm Sur. ..... Shut down 1,500 ft.
Stanolind Oil & Gas Co.'s No. 1 Williams, 1,320 ft. from S and E of Sec. 1,196, T.T.R.R. Sur. ..... Cmtd. cave at 6,105 ft.; waiting on cement to set.
Straughn & Adkins Bros.' No. 1 Lee, 1,980 ft. from W and 420 ft. from N of Sec. 729, C. Kaiser Sur. ..... Shut down 725 ft.

JONES COUNTY

Abers et al's No. 1 Burton, 150 ft. from S and 175 ft. from E of 43.4-acre tract in G. Martinez Sur. ..... Shut down 1,005 ft.

LOVING COUNTY

Ervin & Mahres' No. 1 Thrope, 2,310 ft. from E and 330 ft. from S Sec. 46, Blk. 53, T.&P. Sur. ..... Shut down 810 ft.
Slack's No. 1 Lynd, 990 ft. NE and 330 ft. SE of Sec. 3, Blk. 3, W.&N.W. Sur ..... Drlg. 700 ft.
Eppenauer et al.'s No. 1 Johnson, 330 ft. from NW and SW of Sec. 86, Blk. 1, W.&N.W. Sur. ..... Total depth 4,216 ft.; bailing hole.
Falbe & Evans' No. 1 Dean, 330 ft. from NE and 990 ft. from NW Sec. 79, Blk. 33, H.&T.C. Sur. ..... Shut down 2,500 ft.
Lewis & Slagel's No. 1 Johnson, 330 ft. from N and 1,650 ft. from W Sec. 6, Blk. 56, Twp. 1, T.&P. Sur... Spudded and shut down.
Lockhart & Co.'s No. 3 Bowen & Wells, 330 ft. from NE and SE of Sec. 92, Blk. 1, W.&N.W. Sur. ..... Shut down 3,385 ft.
Martin et al's No. 2 Ramsey, 990 ft. from SE and 2,310 ft. from SW Sec. 83, Blk. 1, W.&N.W. Sur. ..... Top pay 4,188 ft.; total depth 4,219 ft.; plugged back to 4,217 ft.; 3,200 ft. oil in hole; preparing to shoot.
Slagel Drlg. Co.'s No. 1 Cartwright et al, 2,310 ft. from S and 990 ft. from W Sec. 1, Blk. 57, Twp. 1, T.&P. Sur. ..... Shut down 3,182 ft.
Tennant et al's No. 1 Martin, 990 ft. from NW and SW Sec. 66, Blk. 1, W.&N.W. Sur. ..... Shut down 1,400 ft.

MENARD COUNTY

Priest's No. 1 Sorrel, 1,000 ft. from E and 200 ft. from S cor. Sec. 132, E.L.R.R. Sur. ..... Shut down 2,860 ft.

PECOS COUNTY

Dittman's No. 1 Sanford, 330 ft. from NW and 1,650 ft. from NE of Sec. 55, Blk. 10, H.&G.N. Sur. ..... Moving in material (standard).
Slaughter et al's No. 1 Sun Yates, 60 ft. S of Sun Oil Co.'s No. 1 Yates, Sec. 59, Blk. 1, I.&G.N. Sur. ..... Location.

REAGAN COUNTY

Carl Cromwell et al's No. 1 University, 1,320 ft. from S line and 1,320 ft. from E line of Sec. 4, University Blk. 7 ..... Spudded 55 ft.

REEVES COUNTY

Cunningham et al's No. 1 Wright, 1,320 ft. from S and W Sec. 58, Cassel's Sur. ..... Spudded and shut down.
James & Milton's No. 1 Patterson ..... Drlg. 2,195 ft.
Lee O. White et al's No. 1 Hershenson, 330 ft. from N and W lines of Sec. 5, Blk. 51, Twp. 10, T.&P. Sur. ... Shut down 5,044 ft.

RUNNELS COUNTY

Dutton et al's No. 1 Dean, 5,475 ft. from NE and 1,048 ft. from NW in J. Heil Sur. No. 519 ..... Shut down 2,398 ft.

SCHLEICHER COUNTY

Eastland Oil Co.'s No. 1 Joe Tisdale, C Sec. 29, Blk. M, G.H.&S.A. Sur. ..... Drlg. 4,050 ft.
Wesner et al's No. 1 Nicks, 2,310 ft. from N and 2,362 ft. from E of Sec. 77, Blk. LL, T.C. Sur. ..... Cmtng. cave 4,080 ft.
George Wilson's No. 1 Page, Sec. 40, Blk. 1, 1,290 ft. from N, 1,570 ft. from W, G.H.&S.A. Sur. ..... Shut down 5,053 ft.

SCURRY COUNTY

G. E. Dickman and R. B. Pender et al's No. 1 F. C. Davis, 1,000 ft. N and 1,770 ft. W of SE cor. of Sec. 275, Blk. 2, H.&T.C. Sur. ..... Shut down 5,041 ft.
Scurry County Oil Exchange's No. 1 Earnest, 2,310 ft. from N and W Sec. 68, Blk. 3, H.&G.N. Sur. ..... Spudded and shut down.
Seifert & Dibbie's No. 1 T. M. Blackburn, 3,310 ft. from N and 2,310 ft. from W line of Sec. 153, Blk. 97, H.&T.C. Sur. ..... Shut down 3,500 ft.
Simon & Brock et al's No. 1 Cruse, 2,310 ft. from S and E Sec. 119, Blk. 97, H.&T.C. Sur. ..... Show oil 1,798, 1,820, 1,850 ft.; shut down 2,500 ft.

TERRELL COUNTY

Big Bend Oil Co.'s No. 1 Bassett, C NW Sec. 155, Blk. D, M.-K.-T. Sur. ..... Shut down 2,669 ft.
Keck Pecos Trust Co.'s No. 1 Hamilton, C Sec. 6, Georgetown Ry. Sur. ..... Shut down 2,150 ft.
Miller Bros.' No. 1 Allison & Burke, C NW cor. Sec. 10, Blk. 176, T.&P. Sur. ..... Shut down 120 ft.
Mid-Kansas Oil & Gas Co.'s No. 1 Goode, 2,152 ft. from E and 330 ft. from S Sec. 24, Blk. 161, G.C.&S.F. Sur... Shut down 6,120 ft.
Jones et al's No. 1 Pankenham, C SE NW Sec. 43, Blk. B-2, C.C.&D.&R.G.N.G. Sur. ..... Shut down 2,545 ft.

TOM GREEN COUNTY

Belding & Dutton's No. 1 Norsworthy, 2,640 ft. from S and 587 ft. from E of John McNeese Sur. ..... Shut down 760 ft.; show oil and gas 725 ft.
Mintex Oil Co.'s No. 1 Campbell Est., 446 ft. from S and 630 ft. from W of Sec. 180, Dist. No. 11, S.P. Sur. ... Shut down 1,994 ft.
Pratt & Hancock's No. 2 Lewis, 100 ft. N and 330 ft. E of most northerly SW cor. of Joshua S. Grant Sur. No. 2 ..... Shut down 200 ft.

UPTON COUNTY

Cosby Prod. & Roy. Co.'s No. 1 Lane, 2,310 ft. from S and 1,650 ft. from W, Sec. 36, Blk. 1, M.-K.-T. Sur. .. Drlg. 600 ft.
Rankin et al's No. 1 Cordova Union Land, 660 ft. from N and E Sec. 6, G.C.&S.F. Sur., 1¼ miles S of Rankin ..... Drlg. 2,742 ft.

VAL VERDE COUNTY

Independent Operators' No. 1 Whitehead, SE SE Sec. 10, Blk. 4, I.&G.N. Sur., elev. 1,175 ft. ..... Shut down 5,360 ft.
O. O. Owens' No. 1 Mills, Sec. 128, Blk. 1, L&G.N. Sur., elev. 2,130 ft. ..... Shut down 6,780 ft.

WARD COUNTY

Bradford et al's No. 1 Carson, 990 ft. from NE and SE Sec. 26, Blk. 5, H.&T.C. Sur. ..... S.D. 2,195 ft.
Bradford's No. 1 York, 330 ft. from NE and SE of Sec. 10, Blk. 34, H.&T.C. Sur. ..... T.D. 2,503 ft; made small flow into pit.
Boogher's No. 1 fee, 235 ft. from SE and 3,553 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur. ..... S.D. 2,111 ft.
Buster Black's No. 1 Hall & Roberts, 990 ft. from NE and 1,650 ft. from NW Sec. 17, Blk. 32, H.&T.C. Sur... Shut down 1,800 ft.
Central Oil & Gas Co.'s No. 1 Barrow, 330 ft. from NW and 1,383 ft. from SW Sec. 55, J. W. Jackson Sur. ..... Fishing 1,960 ft.
H. V. Greer's No. 1 Carr, 150 ft. from NW and 510 ft. from SW Sec. 12, Blk. 5, H.&T.C. Sur. ..... Spudded and shut down.

Gulf Prod. Co.'s No. 8 O'Brien, 2,310 ft. from S and 330 ft. from W lines of Sec. 194, Blk. 1, B.B.&C. Sur.—Shut down 540 ft.
Hankinson et al's No. 1 Emery, 3,090 ft. from SE and 510 ft. from SW Sec. 26, Blk. 5, H.&T.C. Sur.—Shut down 2,238 ft.
Moran & Miles' No. 1 Boogher, 3,603 ft. from NE and 1,303 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur.—Drlg. 535 ft.
R. F. Owens' No. 1 Lee, 1,344 ft. from NW and 4,533 ft. from SW Sec. 1, J. Howe Sur.—Rigging up standard tools.
Peck & Fuglar's No. 1 Merritt, 3,063 ft. from NE and 1,698 ft. from SE Sec. 11, Blk. 5, H.&T.C. Sur.—Drlg. 1,700 ft.
Rector Oil Co.'s No. 1 Smith, 1,320 ft. from N and E, Sec. 32, Blk. A, G.M.M.B.&A. Sur.—Shut down 3,602 ft.
Rexford et al's No. 2 Johnson, 2,300 ft. from SE and 4,450 ft. from NE Sec. 11, Blk. 5, H.&T.C. Sur.—S.D. 910 ft.
Paul Ryan et al's No. 1 J. S. Reynolds, 4,110 ft. from NE line and 150 ft. from NW line, Sec. 12, Blk. 5, H.&T.C. Sur.—S.D. 250 ft.
Shipley et al's No. 5 Hayzlett, 2,490 ft. from SE and 1,980 ft. from SW Sec. 17, Blk. 5, H.&T.C. Sur.—Shut down 2,507 ft.
Shipley et al's No. 1 Monroe, 330 ft. SE SW Sec. 3, Blk. 1—Shut down 4,545 ft.
Sturm & Simms Oil Co.'s No. 1 Jones, 2,310 ft. from NE and 330 ft. from SE Sec. 25, Blk. B-29, P.S.L. Sur.—S.D. 2,485 ft; T.P. 2,475 ft; averaging 120 bbls. per day with 500,000 ft gas.
White et al's No. 1 Burtner, 150 ft. from NE and 515 ft. from SE of Sec. 4, Blk. 32, H.&T.C. Sur.—Shut down 755 ft.

WINKLER COUNTY

Liner Drlg. Co.'s No. 1 Campbell, 350 ft. from N and E cor. Sec. 2, Blk. B-5—Shut down 4,640 ft.

EAST CENTRAL TEXAS WILDCATS

(Continued from Page 25)

ELLIS COUNTY

E. M. Roger's No. 1 John Lee Winn, 1,650 ft. from E and 510 ft. from S of Orland—Shut down 1,360 ft.; drill stem in hole.

FREESTONE COUNTY

Raley and Clark's No. 1 McLancaster (Pampier), 150 ft. from E of W line and center of N and S line B. Avant Sur.—Derrick.

GREGG COUNTY

Abernathy et al's No. 1 L. A. Rodden, 680 ft. from N and 330 ft. from E lines of Martha Dillard Sur.—Cleaned and shut in.
N. M. Acre et al's No. 1 S. J. Boles, 16 ft. S and 153 ft. E of SE cor. of William Carleton Sur. but in Carl Rhodes Sur.—Drlg. 2,700 ft.; top pay 2,531 ft.
Atlantic Oil Producing Co.'s No. 1 Duncan, 731 ft. from N and 1,250 ft. from W of 100-acre tract in D. Ferguson Sur.—Location.
Artic Petroleum Co.'s No. 1 King, 57 ft. S of most northerly NW cor. and 104 ft. E at right angles in 2-ac. tract, Chisum Sur.—Location.
Atlantic Prod. Co.'s No. 1 J. J. Fuller, 394 ft. from E and 343 ft. from S of 50-ac. tract and lease, Mowery Irwin Sur.—Derrick.
Atlantic Oil Prod. Co.'s No. 2 M. Haynes, 1,300 ft. from E lines of 548-ac. tract, W. C. Alvice Sur.—Location.
Atlantic Oil Production Co.'s No. 1 Meyers, 400 ft. from S line and 300 ft. from W line of tract and in A. T. McGee Sur.—Top pay 3,548 ft.; cleaned and shut in.
Armstrong and Pitts' No. 1 Walker, 940 ft. from N and 1,970 ft. from E of survey, Martha Dillard Sur.—Derrick.
Barnsdall Oil Co.'s No. 1 G. E. Adams, 1,150 ft. from S and 3,720 ft. from W of G. W. Hooper Sur.—Derrick.
Barnsdall Oil Co.'s No. 1 Ferguson, 104 ft. from S and 150 ft. from E of 37-acre tract in H. A. Hoket Sur.—Derrick.
Bagby et al's No. 1 Key, 1,080 ft. from S and 265 ft. from E of Rigsby Sur.—Location.
Bramlette's No. 1 Goforth, 170 ft. due N of NW cor. of Sun-Hilburn-Lloyd lease in Chisum Sur.—Rigging up.
Bob et al's No. 1 T. L. Broy, 290 ft. from E and 1,640 ft. from S of H. A. Holdt Sur.—Derrick.
M. T. Beeler's No. 1 Finley and Thomas, 150 ft. from N and 150 ft. from W of 10-ac. lease, C. H. Alexander Sur.—Derrick.
Branson et al's No. 1 J. J. Fuller, 1,050 ft. from N and 170 ft. from W of survey, M. Alexander Sur.—Derrick.
Campbell and Lee's No. 1 A. Johnson, 170 ft. from N line and 134 ft. from E line of 11-ac. lease in the M. Dillard Sur.—Set 10-in. csg. 886 ft.
Columbia Oil & Gas Co.'s No. 1-A Harley, 650 ft. E and 300 ft. S of SE cor. of Laura Walker 45-ac. tract, William Robinson Sur.—Derrick.
Continental Oil Co.'s No. 1 J. J. Fiewellen, 359 ft. from N and 949 ft. from E of 200-ac. lease, Marshall Mann Sur.—Location.
Cox and Hammond's No. 1 L. A. Rodden, 1,319 ft. from N and 603 ft. E of SE cor. of 105-ac. tract in John R. Crosby Sur.—Cleaned and shut in.
Charles Davidson et al's No. 1 Paul Jones, 7,000 ft. from most southerly N line and 3,600 ft. from W, W. P. Chisum Sur.—Waiting on csg. 3,666 ft.
Eastland Oil & Gas Co.'s No. 1 B. B. Sparks, 150 ft. from N and 150 ft. from W of E 50 acres of 100-ac. tract, Harvey R. Kirk Sur.—Shut down 3,240 ft.
Empire Gas & Fuel Co.'s No. 1 Jeter, 440 ft. from E and 200 ft. N of right of way, Wm. Tyndale Sur.—Location.
Dr. J. C. Falvey et al's No. 1 fee, 150 ft. from S and 150 ft. from W of 58-ac. tract, Marshall Mann Sur.—Cleaned and shut in.
Fain & McGaha's No. 1 Corbin, 950 ft. from N line of lease and 1,425 ft. from W line of survey in the H. Edwards Sur.—T. D. 3,570 ft.; cleaned and shut in.
Feagan & Salmon's No. 1 Thornton, 300 ft. E of Oriental Oil Co.'s No. 1 Alexander—Location.
F. H. E. Oil Co.'s No. 1 Clements, C of 10-acre tract, in Rhodes Sur.—Location.
Glasscock's No. 1 Jones, 150 ft. from S and W of 65-acre tract, in Chisum Sur.—Derrick.
Grossy et al's No. 1 Morgan, 325 ft. from N and 900 ft. of Martha Dillard Sur.—Derrick.
Greenwood & Josey's No. 1 Spurrier, 438 ft. from S and center E and W of 3-acre lease, Wm. Castleberry Sur.—Derrick.
Greer's No. 1 L. M. Colburn, 150 ft. from E and 150 ft. from S of 45-ac. lease, 5,700 ft. from E and 850 ft. from N of survey, Henry Hathaway Sur.—Drlg. 3,250 ft.
Gulf Prod. Co.'s No. 1 Fonville, 330 ft. from S and E of 100-acre lease in Wm. Tyndale Sur.—Location.
Gulf Prod. Co.'s No. 1 Shephard, 330 ft. from S and W of most southerly SW cor. of Rains Sur.—Derrick.
Harper Petroleum Corp.'s No. 1 Woodley Jones, 2,000 ft. from N line and 3,900 ft. from E line of William H. Castleberry Sur.—Derrick.
Howard and Russell's No. 1 Stone, 150 ft. from N and 150 ft. from E of 100-ac. tract, Bailey Anderson Sur.—Derrick.
Humble Oil & Refining Co.'s No. 1 H. M. Lawrence, 540 ft. from N and 219 ft. from W of 100-ac. tract, David Ferguson Sur.—Moving in material.
Humble Oil & Refining Co.'s No. 1 J. H. Sheppard, NE cor. of 215-ac. tract in I. Allen Sur.—Derrick.
Humble Oil & Refining Co.'s No. 1 J. M. McFarland, 1,400 ft. from N and 449 ft. from W lines of 57.5-ac. tract, L. J. Rigsby Sur.—Derrick.
Jackson et al's No. 1 Fee, 2,040 ft. from N and 2,000 ft. from E of M. Dillard Sur.—Derrick.
Johnston's No. 1 Williams, 125 ft. from N and W of 3-acre tract, Van Winkle Sur.—Derrick.
K. B. Oil Co.'s No. 1 Dickson, 150 ft. from S and 150 ft. from W of 5-ac. lease, Mary Van Winkle Sur.—Rig.
Kiltner and Easterling's No. 1 Missie Young, 230 ft. S and 250 ft. E of SW cor. of the H. Edwards Sur. in the C. Rhodes Sur.—Rigging up.
Kimsey-Trimble's No. 1 Griffith Davis, 922 ft. E of N line of Griffith Davis 119.5-ac. tract from NW cor. of same and 145 ft. at right angles, W. P. Chisum Sur.—Set csg.; T. D. 3,670 ft.
Lockhart et al's No. 1 Jones, 200 ft. from N and center E and W of 19-acre lease in Hooper Sur.—Derrick.
Lone Star Oil Co.'s No. 1 Griffin, C of 2-acre lease, in Van Winkle Sur.—Derrick.
Charles Love et al's No. 1 J. B. Doby, 150 ft. from E and 150 ft. from S of S 6 acres of W 42 acres of 170-ac. tract, W. H. Castleberry Sur.—Derrick.
Magnolia Petroleum Co.'s No. 1 L. F. M. Fonville, 150 ft. from S and 440 ft. from E lines of 50-ac. lease, W. M. Tyndale Sur.—Top pay 3,534 ft.; T. D. 3,537 ft.; set csg.
Magnolia Petroleum Co.'s No. 1 Carr, 990 ft. from N and W in M. McCurry Sur.—Set surface csg.
Magnolia Petroleum Co.'s No. 1 Key, 200 ft. from N and 150 ft. from E of 64-acre lease, John Ruddle Sur.—Derrick.
Mullendore & Berry's No. 1 Spear, 180 ft. E of road and 165 ft. S of N line of 15-acre lease, Mary Van Winkle Sur.—Rigging up.
Oils, Inc.'s No. 1 Milas, 150 ft. from S and E of tract, John Ruddle Sur.—Derrick.
Ross et al's No. 1, located on Findley & Thomas 50-ac. tract, 150 ft. from S line of 6.66-ac. lease, C. H. Alexander Sur.—Derrick.
Selby Oil & Gas Co. and Kistler's No. 2 Snavely, 1,640 ft. from S and 2,440 ft. from E of Wm. Lyndale Sur.—Rigging up.
H. P. Smith's No. 1 Elder & Son, 141 ft. from W line of lease and center N and S of 8-acre lease in Van Winkle Sur.—Derrick.
Earl Sneed et al's No. 1 A. M. Kensel, 293 ft. from N and 260 ft. from W of N 23-ac. lease in 94 acres, H. H. Kirk Sur.—Location.
Sun Oil Co.'s No. 1 J. W. Akin, 330 ft. from N and W lines of 25.68-ac. tract in George A. Thomason Sur.—Fishing pipe; T. D. 3,450 ft.
Superior Oil Co.'s No. 1 Pritchard, 330 ft. from N and W of 40-acre lease in Francis Johnson Sur.—Building derrick.
The Texas Company's No. 2 Dickson, 300 ft. from N and W of lease, Wm. McCurry Sur.—Location.
Tidal Oil Co.'s No. 1 Lake Divernia Fish and Game Club, 300 ft. from N and 550 ft. from W lines of tract in William G. Painter Sur.—Rig up.
Valentine Oil Co.'s No. 1 Goyne-Hughey, 6,100 ft. from S and 6,800 ft. from W of survey, Mary Van Winkle Sur.—Rigging up.
H. M. Wages et al's No. 1 Finley and Thomas, 165 ft. from E and 150 ft. from S of 10-ac. lease, Charles H. Alexander Sur.—Shut down 3,200 ft.
L. H. Wents Oil Co.'s No. 1 G. W. Richie, 330 ft. S of NE cor. of W 20 acres of 40-ac. tract in the William Carlton Sur.—Top pay 3,519 ft.; T. D. 3,517 ft. running tubing.
Ziegler Oil Co.'s No. 1 L. D. Campbell, 540 ft. from N and 219 ft. from E of 72½-ac. tract, David Ferguson Sur.—Derrick.

HENDERSON COUNTY

Seven Wells Corp.'s No. 1 Douglas, 767 ft. from N and 833 ft. from E of tract in K. H. Douglas Sur.—Location.

HOPKINS COUNTY

Roark et al's No. 1 Taylor, 220 ft. from N and W lines of 80-ac. tract in the John Polk Sur.—Rig up.

HOUSTON COUNTY

Apex Drlg. Co.'s No. 1 Thompson Bros., 250 ft. out of NW cor. of 200-acre tract in John Shears Sur.—Shut down 1,500 ft.
N. E. Irish's No. 1 Mrs. Byrdie Watters, 2,300 ft. W and 300 ft. S from the NE cor. of I. J. Ellis Sur.—Spudded and shut down.
Ramsland and Ramsland's No. 1 Pennington, 750 varas W of E line and 500 varas from S line of survey on 186-ac. tract, Ramond LaGarsa Sur.—Shut down 620 ft.
Phillips and Phillips' No. 1 Kennedy Bros., 485 varas out of SW cor. of 100-ac. tract, Jose M. Procella Sur.—Rig up and shut down.
Snow's No. 1 Harron, 300 ft. out of NE cor. of 327-acre tract, J. P. Procella Sur.—Spudded and shut down.

HUNT COUNTY

Foster and Earl's No. 1 Whitney and Clark, 150 ft. out of NW cor. of 50-ac. tract in W. H. Landrum Sur.—Spudded and shut down.

LAMAR COUNTY

Indian States Oil Co.'s No. 1 W. T. Watson in Ignalius Aud Sur.—Shut down 4,026 ft.
Puritan's No. 1 George Parr, 2,000 ft. from W of Frisco Railway and 1,000 ft. from E line of R. Russell Sur.—Ready to spud.

LEON COUNTY

Cooper et al's No. 1 Lynch, 4,000 ft. from W line and 250 ft. N from the S line of Thomas H. Gardner Sur., and in 200-ac. tract—Shut down 1,931 ft.
I. M. Hogg, trustee's No. 1 Stone, 156 ft. W of Highway No. 43 and 160 ft. from N line of survey in R. L. Moody Sur.—Drlg. 3,925 ft.
Sun Oil Co.'s No. 2 Grayson—Shut down 3,741 ft.
Sun Oil Co.'s No. 3 Grayson, 1,320 ft. from NE and 150 ft. from SE of tract, Marguez Sur.—Location.

LIMESTONE COUNTY

George McCamey's No. 1 B. K. Arnett, center of Blk. 13 in Casson Townsite—Shut down 1,720 ft.

MORRIS COUNTY

Dumas et al's No. 1 Tom Ball, 1,046 ft. from E and 248 ft. from S of 71-ac. tract, A. S. Young heirs Sur.—Derrick.

NACOGDOCHES COUNTY

Bunte et al's No. 1 A. F. Boatman, 330 ft. from S and 150 ft. from W of 67-ac. tract, William A. Moore Sur.—Shut down 1,605 ft.
Burke et al's No. 1 F. R. Patterson, 4,518 varas from W and 315 varas from W line of Patterson 70-ac. tract, Joseph Las Santos Chay Sur.—Shut down 4,290 ft.
Churchill-Armstrong's No. 1 Max W. Hart, 2,640 ft. from N line and 2,640 ft. from S of N line of survey, George Pollett Sur.—Rig up.
Foreman and Weller's No. 1 Norris, 60 ft. NW of E line and 420 ft. S of road, in 73.5-ac. tract, Hossea Y. Barbo Sur.—Rigging up.
Foreman et al's No. 1 Robert Mattaner, NW cor. of 520-ac. tract, J. A. Cherino grant—Rig up and shut down.
Gainer et al's No. 1 Nice Well, 18 miles SE of Nacogdoches, 600 ft. from S and 150 ft. from W of Wells tract in A. Cherino Sur.—Running csg. at 3,007 ft.
Harwell and Scott's No. 1 R. I. Driver, 1,500 ft. from SE cor. of P. B. Ballard 125-ac. tract, 15 miles SE of Nacogdoches in Patricia De Torres Sur.—Shut down 2,800 ft.

Refineries

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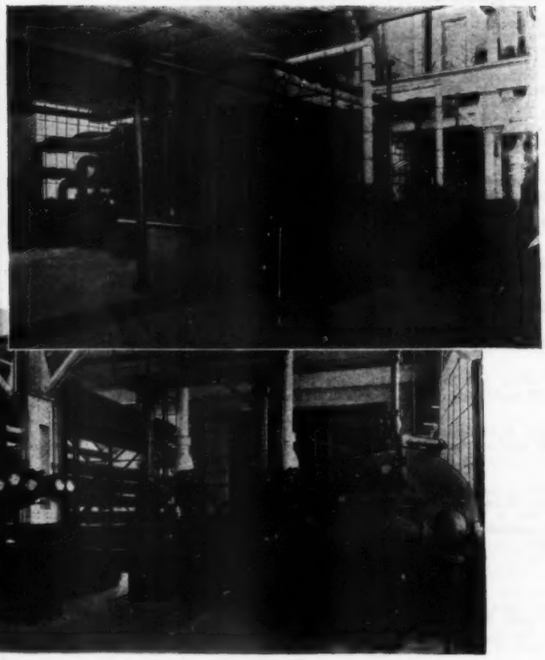
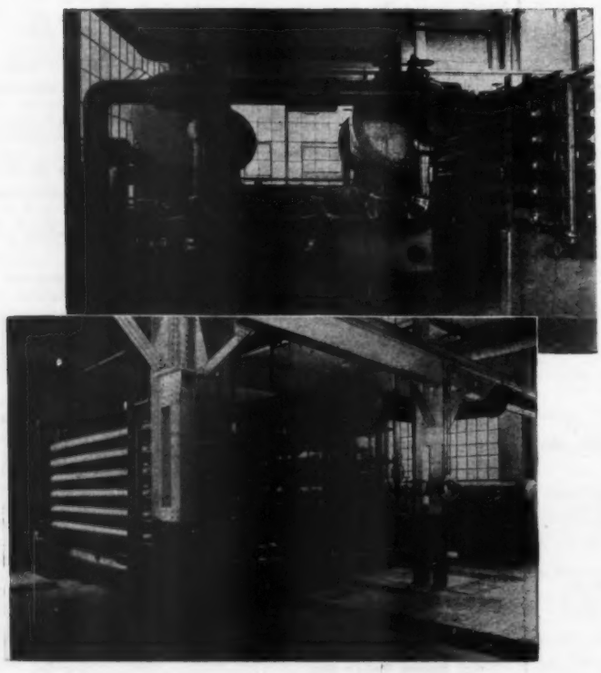


Vogt Refrigeration Equipment

SINCE 1880



The illustrations show a combined Vogt Exhaust Steam Absorption and Compression Refrigerating Unit operating on sixty pounds pressure exhaust from a turbine driven power generating set. One hundred and sixty tons refrigeration is developed as a by-product and the final condensate from the absorption machine is returned to the boiler, completing a most economical cycle of performance.

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Manufacturers of: Oil Refinery Equipment, Drop Forged Steel Valves and Fittings, Water Tube Boilers, Ice Making and Refrigerating Machinery, Heat Exchangers.

Joiner and Henson's No. 1 Andy Legg, 330 ft. from N and 330 ft. from W of tract, John Durst Sur. .....Shut down 3,125 ft. (correction on depth).

Naco Oil Co.'s No. 1 J. C. Orton, 1,000 ft. NE of highway and E of town and E of creek in Nacogdoches Townsite, A. Riola Sur. .....Spudded and shut down.

W. W. Wheeler's No. 1 I. D. Parmley, about 165 varas N of S line and about center of E line of survey, John Kirby Sur. .....Shut down 4,007 ft.

Sequia's No. 1 Vanover, 6,072 ft. from N and 6,636 ft. from E of Alford Oliver Sur., E Boyd E 100-ac. tract .....Derrick.

Taylor-Vaughn's No. 1 Dixon Greer, 160 ft. from W and 450 ft. from N lines of 60-ac. tract in the M. G. Horrers Sur. .....Shut down 250 ft.; shale.

Big Indian Oil Co.'s No. 1 J. N. Stewart, center of 79-ac. tract in the Jose Ignacio Ybarbo Sur. .....Derrick.

L. E. Trout and Dison's No. 1 E. A. Blount, 150 ft. out of NW cor. of survey and tract, E. D. Williams Sur. .....Rig up and shut down.

RAINS COUNTY

Berry and Hale's No. 1 Ownsby, 150 ft. N and 1,100 ft. from E of most easterly SE cor. of survey, Alexander Sur. .....Preparing to start drlg.; T. D. 2,095 ft.

RED RIVER COUNTY

Royle and Jondreau's No. 1 V. S. Griffin, 700 ft. from N line and 650 ft. E of W line of survey, J. C. Brown Sur. .....Derrick.

Droppleman and Bundy's No. 1 J. W. Cunningham, 350 ft. from the S and 1,066 ft. from the E lines of B. M. Ballard Sur. .....Rig up.

Harris & Joiner's No. 1 E. Howison, 225 ft. S, 135 ft. W of 79-ac. tract, William Humphreys Sur. .....Preparing to start up; T. D. 2,216 ft.

Pearsons et al's No. 1 J. R. Dellahunty, 500 ft. from N of Isaac Moore Sur. and 200 ft. E of E line of Robert Glass Sur. .....T. D. 740 ft.

ROCKWELL COUNTY

J. F. Barron's No. 1 H. L. Lofland, center of 69-ac. tract in W. M. Bird Sur. .....Waiting on csg.; T. D. 120 ft.

KILGORE AREA—RUSK COUNTY

Crider and Manley's No. 1 R. A. Metley, 600 ft. from S and 1,150 ft. from W of J. T. McDaniels Sur. ....Derrick.

Harry Elliott's No. 1 Carroll, 175 ft. from N and 200 ft. from E of 7-ac. tract, W. R. Cook Sur. .....Location.

State Production Co.'s No. 1 Gipson, 630 ft. from N and 175 ft. from E lines of tract in T. Lloyd Sur. ....Shut down 1,800 ft.

JOINER POOL—RUSK COUNTY

Armstrong's No. 1 Alford, 151 ft. from S and 1,080 ft. from W of survey, T. J. Moore Sur. .....Derrick.

British American Oil Co.'s No. 1 Cooper, 250 ft. from N and E of 45-acre lease in Cadene Sur. .....Rigging up.

Bullock's No. 1 Alford, 1,300 ft. from S and 150 ft. from W of survey, T. J. Moore Sur. .....Shut down 2,953 ft.

Campbell Oil Co.'s No. 1 Compton, 600 ft. from N and W line and Simon Del Rio Sur., 1½ miles NW of Minden .....Derrick.

Dunnigan and Holt's No. 1 Cansler, 150 ft. N and W of SW cor. Gabe McIlroy 16.3-ac. tract in F. Cordova Sur. .....Drlg. 3,684 ft.

Elzy Drlg. Co.'s No. 1 Frederick, 150 ft. from S and 603 ft. from W of Frederick 90-ac. tract, Juan Ximenes Sur. .....Derrick.

Golding & Murchison's No. 1 Kelly, 515 ft. N and 410 ft. E of SE cor. of E. E. Moore 200-acre tract, Cadene Sur. .....Derrick.

Goude & Murray's No. 1 Priddey, C 2½-acre tract, Overton Townsite .....Rig.

C. C. Julian's No. 1 Motley, 780 ft. from N and 1,673 ft. from W of survey, J. T. McDaniels Sur. .....T. D. 191 ft.

Leonard Petroleum Co.'s No. 1 Sanger Bros., 390 ft. from N and 350 ft. from W of survey, J. P. Meredith Sur. .....Shut down 4,079 ft.; tested 40 fourbles salt water in 15 minutes.

Mass and Tucker's No. 1 Matthews, 3,244 ft. from N, 4,356 ft. from E, Dalines Cartimas Sur. .....Shut down 3,310 ft.

H. C. McBride's No. 1 Sue Hale, 150 ft. from S and 150 ft. from W of Sue Hale 88-ac. tract, John Darley Sur. .....Set 12½-in. csg. 212 ft.

Nat Saddler's No. 1 Ed Sparks, 350 ft. from E, 150 ft. from S of survey, L. C. Riggs Sur. .....Shut down 2,082 ft.

Pitts et al's No. 1 Freeman, 1,000 ft. N of S line and 1,000 ft. E of W line of 181-ac. tract, J. Watkins Sur. .....Rig blew down.

Priest et al's No. 1 Mayfield, 155 ft. from N and W lines of 22-ac. lease in Daniel Clark Sur. .....Shut down 2,700 ft.

Rowe et al's No. 1 Maxwell, 365 ft. from E and 237 ft. from S of B. F. Maxwell 59-ac. tract, R. H. Pinney Sur. .....Derrick.

SMITH COUNTY

Adams and Berry's No. 1 T. O. Wright, 150 ft. from N line and 150 ft. from E line of Juan Vargus Sur. .....Drlg. 2,395 ft.

Bailey Gaunce et al's No. 1 S. S. Cook, 150 ft. from S and 150 ft. from W of S. S. Cook 20-ac. tract in 189-ac. tract, Juan Vargus Sur. .....Shut down 2,350 ft.

Ben Banner's No. 1 Lee White, 925 ft. from E line and 1,200 ft. from N line of Abraham H. Scott Sur. .....Shut down 3,300 ft.

Bunte et al's No. 1 Atkinson, 1,000 ft. from S line and 1,000 ft. from N line of 330-ac. tract, Calloway Dean Sur. .....Rigging up.

Roy I. Carter's No. 15-B T. O. Wright, 1,850 ft. from N and 1,050 ft. from E lines of Juan Vargus Sur. ..Shut down 3,650 ft.; set csg.

Rex Cannon et al's No. 1 Buells Meanss .....Derrick.

Cotton Belt Oil Co.'s No. 1 C. S. Jackson, 500 ft. from N and 500 ft. from W of 39.38-ac. tract, Henry Mickleborough Sur. .....Drlg. 3,796 ft.

Deason Oil Co.'s No. 1 T. O. Wright, 1,440 ft. from N and 250 ft. from W of T. O. Wright 86-ac. tract, Juan Vargus Sur. .....6-in. set at 3,660 ft.

East Texas Refining Co.'s No. 1 Colored Methodist Church, James Jordan Sur. .....Shut down 2,408 ft.

Hancock and McCarthey's No. 1 J. C. Cross, 200 ft. from E of road and 200 ft. N of S line of survey on a 13-ac. tract, Burbridge Sur. .....Set 10-in. csg. at 72 ft.

John Hoosier et al's No. 1 W. T. Roberts et al, 300 ft. from N and 377 ft. from W lines of 13½ acres in the Juan Vargus Sur. .....T. D. 3,650 ft.

McCarthy and Hancock's No. 1 Nellie Taylor, 250 ft. out of SW cor. of 73-ac. Taylor tract, F. M. Taylor Sur. .....Derrick.

Mid-Kansas Oil & Gas Co.'s No. 1 J. H. Sharp, 520 ft. W and 1,170 ft. from S of most northerly NE cor. 482.67-ac. tract in the M. De Los Santos Sur. .....Drlg. 2,937 ft.

Miller et al's No. 1 McDavid .....Spudded and shut down.

Morrison's No. 1 I. Roy, 330 ft. N and E from SW cor. of 87-ac. tract in Henry Cools Sur. .....Shut down 3,900 ft.

Phillips & Phillips' No. 1 Anna Morrison .....Set 10-in. csg. 33 ft.; shut down.

Republic Production Co.'s No. 1 Scroggins, 1,150 ft. from N and 160 ft. from W lines of W. W. Simms Sur. on 10.7-acre lease .....Derrick.

M. M. Rowand et al's No. 1 Gibbons, 1,800 varas from W and 200 varas S of river (which is N line of survey), J. M. Garcia Sur. .....Shut down 3,610 ft.

Sun Oil Co.'s No. 1 T. O. Wright, 1,500 ft. from N and 1,275 ft. from E lines of survey and 160 ft. from S and W lines of 3.76-ac. tract, Juan Vargus Sur. .....Drlg. 3,668 ft.

Smith & Son's No. 1 S. S. Cooke, 1,875 ft. N and 231 ft. W from SW cor. D. Wright tract, Juan Vargus Sur. .....Drlg. 2,852 ft.

Sun Oil Co.'s No. 2 J. J. Denton, 250 ft. from N line and 425 ft. from E line of tract in the Juan Vargus Sur. .....Drlg. 3,570 ft.

The Texas Company's No. 3 Blackwell, 330 ft. from S and E lines of 100-ac. tract in James Jordan Sur. .....Location.

Gulf States Development Co.'s No. 1 S. S. Cooke, C of 5-acre tract and lease in James Jordan Sur. .....Shut down 3,563 ft.

Tytex Oil Co.'s No. 1 Alex Weldert, 2,030 ft. from S and 525 ft. from E lines of Franklin T. Bodenheimer Sur. .....Derrick.

Vitex' No. 1 Irion, 150 ft. from S and E lines of 50-ac. tract in Mary Hughes Sur. .....Shut down 1,185 ft.

Yarber et al's No. 1 R. G. Wright .....Derrick.

TITUS COUNTY

H. V. Cook's No. 1 M. C. Rogers, center of SW of Moore Sur. .....Shut down 1,410 ft.

Joiner et al's No. 1 Clayton Brown .....Shut down 2,250 ft.

Venza Oil Co.'s No. 1 McGill, 450 ft. from S and 662 ft. from W of H. C. Riggs Sur. .....Drlg. 5,385 ft.

UPSHUR COUNTY

Arcadia Refining Co.'s No. 1 Victory, 3,200 ft. from W and 900 ft. from S lines of E. A. J. Evans Sur. ....Drlg. 3,250 ft.

Alma Petroleum Co.'s No. 1 J. W. L. Yount .....Cleaned and shut in; T. D. 3,649 ft.

Barkley et al's No. 1 J. B. Webb, 330 ft. from SE cor. of 31-ac. lease on 76-ac. tract, G. W. Hooper Sur. ...Cleaned and shut in 3,719 ft.

Bogle et al's No. 1 Victory et al, 420 ft. from E and 280 ft. from S of lease and most northern NE cor. of tract, E. A. J. Evans Sur. .....Rigging up.

Brookins-Mitcham et al's No. 1 Free, approximately 1,320 ft. from N and 4,880 ft. from E of Hooper Sur. .Rigging up.

Cockrell et al's No. 1 C. A. Lee, 150 ft. from S and 150 ft. E of 26½-ac. tract, W. L. Palmer Sur. .....Derrick.

Callahan et al's No. 1 Lee R. Kay, 660 ft. from N and E lines of Charles O'Neal Sur. .....Derrick.

Calhoun et al's No. 1 J. R. Penn, 265 ft. from S line and E line of Penn 104-ac. tract, Joseph Manning Sur. .....Shut down 3,718 ft.

Compton and Letts' No. 1 J. C. Wilsford, 300 ft. from E line and 2,700 ft. from S line of survey, L. Lomzolias Sur. .....Spudded and shut down.

Cole and Butler's No. 1 D. F. Guest, 300 ft. out of NE cor. of Guest 129-ac. tract and survey .....Derrick.

Daily Oil & Gas Co.'s No. 1 B. F. Phillips, 200 ft. out of SE cor. of 64-ac. tract, P. Whitestone Sur. .....Derrick.

Glasscock et al's No. 1 C. C. Londers, 115 ft. from N and 130 ft. from E lines of 2.33-ac. tract in G. W. Hooper Sur. .....Coring 3,626 ft.

Home Oil Co.'s No. 1 F. D. Futrell, 150 ft. out of SW cor. and 520 ft. from E and 400 ft. from S line of 7.8-ac. tract, A. Lumbrara Sur., south of Gilmer .....Washing; T. D. 2,396 ft.

Humble Oil & Ref. Co.'s No. 1 Reves, 450 ft. from S and 324 ft. of 28-acre tract in G. W. Hooper Sur. ....Location.

Humble Oil & Ref. Co.'s No. 1 Johnson, 330 ft. from S and W of 100-acre tract of G. W. Hooper Sur. .....Location.

Humble Oil & Refining Co.'s No. 1 E. O'Bern, 1,325 ft. W and 1,625 ft. N of SE cor. of 300-ac. tract in Jose Pineda Sur. .....T. D. 3,619 ft.; cleaned and shut in.

Humble Oil & Refining Co.'s No. 1 M. Mattox, 200 ft. from S and E lines of 61.6-ac. tract in J. Pineda Sur. .....Derrick.

Humble Oil & Refining Co.'s No. 1 J. W. Smith, 200 ft. from N and E lines of 86.5-ac. tract in the J. Pineda Sur. .....Drlg. 3,643 ft.

J. A. Johnson's No. 1 J. T. Miller .....Drlg. 3,595 ft.

A. D. King's No. 1 Lloyd, 156 ft. from N line of survey and 288 ft. from E line of 4-ac. tract, D. Sanches Sur. .....Shut down 2,105 ft.

Lotts Bros. et al's No. 1 C. B. Jones, 200 ft. from N and 165 ft. from E lines of 50-ac. tract in the Henry W. Augustine Sur. .....Drlg. 2,500 ft.

Murphy et al's No. 1 J. Watkins, 330 ft. from S and 250 ft. from W lines of 22-ac. lease in J. Pineda Sur. .....T. D. 3,719 ft.; running tubing.

G. P. Mitcham's No. 1 J. B. Bland, 165 ft. from E and 650 ft. from S of 62½-ac. tract and 15-ac. lease, G. W. Hooper Sur. .....T. D. 3,708 ft.; cleaned and shut in.

Smith Bros.' No. 1 J. W. Davis, 400 ft. from N and 800 ft. from W lines of S 200 acres of J. W. Davis 330-ac. tract in John Burleson Sur. .....Set 10-in. at 97 ft.

J. R. Smith's No. 1 J. B. Webb, 200 ft. N and 489 ft. W of SE cor. of W 20 acres of 71-ac. tract, G. W. Hooper Sur. .....Derrick.

Sorrels & Duffey's No. 1 J. W. Wooden, 200 ft. from E and 200 ft. S of survey, Isham Williams Sur. ....Drlg. 3,480 ft.

Sun Oil Co.'s No. 1 Hargrove, 250 ft. from S and 330 ft. from E lines of 200-ac. tract in Marshall Mann Sur. .....T. D. 3,709 ft.; cleaned and shut in.

Sun Oil Co.'s No. 2 Watkins, 1,220 ft. N and 1,360 ft. W of most southerly SE cor., Jose Rinoda Sur. .....Location.

Wheeler et al's No. 1 Webb, 300 ft. from N and 100 ft. E of road, approximately 4,840 ft. from W and 1,920 ft. from N of Hooper Sur. .....Rigging up.

VAN ZANDT COUNTY

Barton et al's No. 1 C. L. Hubbard, 600 ft. out off NE cor. of Hubbard 225-ac. tract, 3¼ miles S of Canton, M. J. Cadena Sur. .....Spudded and shut down 300 ft.

Hart Petroleum Corp.'s No. 1 M. L. Cox, 1,785 ft. N of S line and 524 ft. E of W line of Cox 300-ac. tract in Nugent Headright Sur. .....Shut down 2,085 ft.

H. Helms et al's No. 1 Bogue, 647 ft. W and 155 ft. S of SE cor. of J. M. Brown 70-ac. in Marshall University Sur., SE of Van .....Dry and abandoned 3,098 ft.

Kelly Oil & Gas Co.'s No. 1 Lemsford, center of Lemsford tract, John Conner Sur. .....Shut down 2,590 ft.

Neil McMehory's No. 1 R. V. Murphy, 150 ft. from N and 150 ft. W of survey, H. Bailey Sur. .....Shut down 2,450 ft.

W. P. Palmer et al's No. 2 W. F. Forster, 600 ft. from N and 450 ft. from E of SW cor. of Forster 151-ac. tract in the F. Montgomery Sur. .....Shut down 3,000 ft.

W. A. Phillips et al's No. 1 Morris, 1,050 ft. S of N line and 350 ft. W of E line of center west of Norris 160-ac. tract in the C. L. Morris Headright Sur. .....Shut down 3,075 ft.

Van Oil Association's No. 1 Tankersley, 200 ft. from E and 1,000 ft. from S of farm, L. Landers Sur. .....Coring 2,850 ft.

WOOD COUNTY

Brennan and Wood's No. 1 L. W. Mings, 300 ft. from NW cor. of survey and tract, Moses Stripling Sur. ..Derrick.

Loche and Clack's No. 1 A. C. Pick, 165 ft. S of NE cor. G. C. Reeves 25-ac. tract, Daniel Fuller Sur. ....Shut down 2,008 ft.

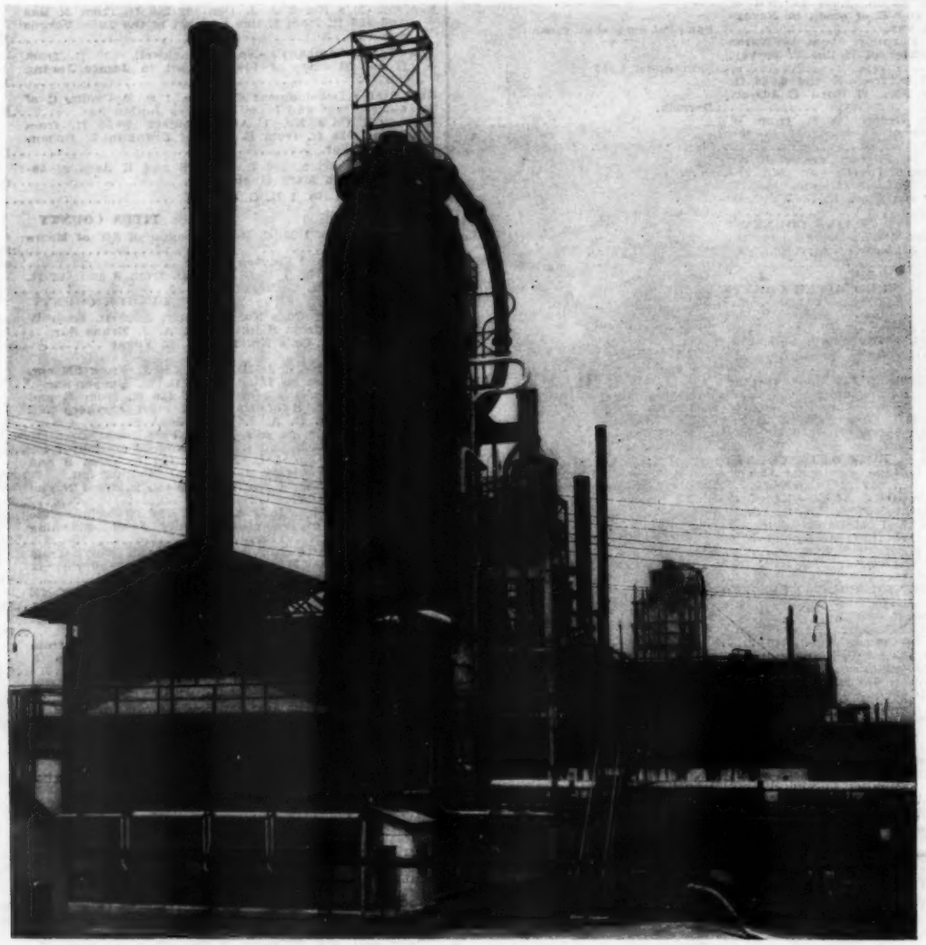
Main Holding Co. and Thelma Wells' No. 1 Stewart, 1,938 ft. from NE and 3,898 ft. from E line of survey, E. Rehorse Sur. .....Shut down 600 ft.

Vitek Oil Co.'s No. 1 Rosa Bogel, 250 ft. from N and 500 ft. from W of survey, Sarah English Sur. .....Shut down 3,050 ft.

Wood County Oil & Gas Co.'s No. 1 Ivy Davis, 180 ft. from S line of 160-ac. tract, Sarah McDonald Sur. ..Derrick.

Wood County Investment Co.'s No. 1 Ross .....Derrick.

Wood County Development Co.'s No. 1 E. L. Pritchett ...Derrick.



Vacuum Distillation of Reduced Crude

The complete Foster Wheeler vacuum distillation unit illustrated is compactly arranged to fit into a space 80x135 feet. The unit has the capacity to handle 9250 barrels per day reduced Mid-Continent crude from an existing shell still battery.

The products recovered to specification include gas oil, pressable wax distillate, heavy wax distillate, overhead cylinder stock and the flux bottoms.

FOSTER WHEELER CORPORATION
165 Broadway, New York, N. Y.
Branches in Principal Oil Centers

Foreign Associates: Foster Wheeler Limited; London, England.
Foster Wheeler Limited; Toronto-Montreal, Canada.
Societe Anonyme Foster Wheeler; Paris, France.

FOSTER WHEELER

Brief Items for Petroleum Refiners

Solar Executive Gives Reason for Standard Merger

Changed conditions within the oil industry which have resulted in substantial operating losses for the Solar Refining Co. over the past four years are given as the main reason for a consolidation with the Standard Oil Co. of Ohio, in a letter to Solar stockholders by J. R. Cuthbert, vice president of the company. The principal Solar property is a 15,000-bbl. refinery located at Lima.

A special meeting of the stockholders will be held at Lima, Ohio, on October 1 to consider the proposal to transfer the Solar properties to the Standard company either through an exchange of stock or cash sale. Should the sale be ratified, a meeting of the Standard of Ohio stockholders will be held not later than October 10 to ratify the proposal to increase the number of common shares from 766,667 to 811,112 shares to take care of the Solar acquisition.

Mr. Cuthbert in a letter outlining the proposed merger plans said:

"As you are aware from the annual reports of the company which have been submitted to you from time to time, the company's refining operations have resulted in losses for the past four years. The causes of the company's losses may be briefly sketched as follows:

"The company owns no crude oil properties and has no owned or controlled retail outlets for its products. It has stood in the isolated and unfavorable position of company possessing only refining facilities. While in the earlier history of the company this position did not operate in any marked degree to affect the company's prosperity, during recent years the intensive competition in the industry and the overexpansion in refining and other branches thereof, have resulted in a narrowing of the margin between the cost of crude oil and the realized wholesale price of finished refined products, and the effect has been not only to wipe out all profits in the company's refining operations during the past few years, but, as stated above, to cause it serious losses.

"The financial position of the company has been steadily growing worse and the conviction has been forced upon your directors that the outlook of the company as a separate refining unit is a hopeless one. Serious losses have been incurred in the first half of this year's operations of the company and these losses, together with a substantial shrinkage in the value of the company's investments, have resulted in a material decrease in its assets.

Vulnerable Position

"By reason of changing conditions in the industry, moreover, the position of the company has become increasingly vulnerable and in the face of the prospect of continuing losses, your directors have deemed it imperative that it make an alliance or combination with some other company engaged in the petroleum business having a more strongly intrenched position in the industry. Your directors, therefore, for the past two years have been engaged in endeavoring to make such an alliance, and have succeeded in negotiating a contract for a combination with the Standard Oil Co. of Ohio. Your directors believe that by a combination with this comparatively large company possessing its own retail marketing outlets, transportation facilities and an assured supply of crude oil, the future of your company's properties would be assured.

"Under the terms of the agreement with the Standard Oil Co. you will be entitled to obtain stock in the Standard Oil Co. of Ohio on the basis of one share of the common stock of the Standard Oil Co. of Ohio for each 3.6 shares of Solar stock surrendered by you within the period provided in the agreement.

"In the belief that certain Solar stockholders might wish to liquidate their holdings in cash at this time instead of converting their shares into those of the Standard Oil Co., your directors have stipulated in the agreement with the Standard Oil Co. that Solar stockholders are to have the option of obtaining cash for their holdings if they so desire. Accordingly, if you elect to take cash for your holdings, you will receive from the company the sum of $17 per share."

PIERCE PLANT AT FORT WORTH RECONDITIONED BY SINCLAIR

FORT WORTH, Tex., Sept. 7.—The Sinclair Refining Co. is reconditioning the local plant which was included in the purchase made by the Sinclair Consolidated Oil Corp. from the Pierce Petroleum Corp. last year and will have this plant in operation on or about October 15. The plant has been shut down for 10 years.

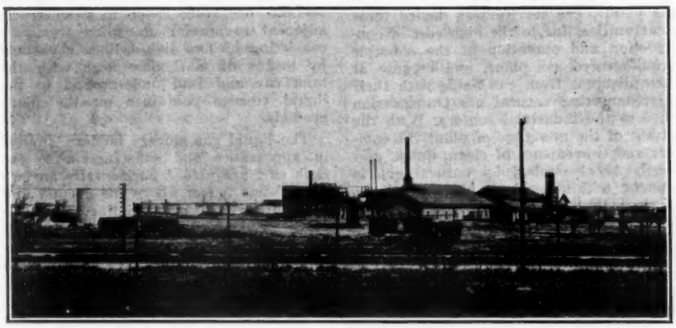
Not much new equipment is being used at the plant, many repair parts and equipment being brought from plants in Oklahoma to use at the present time. Plans have been formulated to enlarge and change the plant later on if conditions warrant.

Continuous shell stills will be used for distillation. A bubble tower which has a capacity of 10,000 bbls. per day has been brought from a refinery in Oklahoma and erected at the plant. However, at the present time it is planned to process only about 5,000 bbls. per day, increasing the capacity later when desired.

The plant has well equipped machine shops, tank car repair shops, water wells, electric power plant and a 40-car loading rack.

There are seven 55,000-bbl. tanks at the refinery site, four 37,500-bbl. tanks, two 30,000-bbl. tanks, nineteen 10,000-bbl. tanks, five 5,000-bbl. tanks and several other miscellaneous sized tanks, making a total of around 825,000 bbls. storage at the plant.

At the present time the company will refine only gasoline, kerosene, gas-oil and fuel oil. J. N. Youmans is in charge of reconstructing the plant. Products from the refinery will be distributed through the Sinclair marketing system in the Southwest, which has its district offices in Fort Worth.



View of former Pierce refinery at Fort Worth, Tex., being reconditioned by Sinclair Refining Co.

TAX TO AID UNEMPLOYED

The 25,000 members of the New York Automobile Club and the New York State Automobile Association will oppose any legislation tending to increase the gasoline tax levy for the purpose of raising funds for the unemployed. To raise the tax they say will be a violation of the pledge state traffic law which provides that "the registration fees imposed upon motor vehicles shall be in lieu of all taxes, general or local."

ENLARGING PLANT

The Phoenix Refining Co. which operates a small skimming plant at Pettus, Tex., is preparing to increase the output approximately 40 per cent. A new shell still and tower are being installed. The output of the plant which operates with Pettus crude oil is sold locally.

STATE SHARES MORE IN FRENCH MONOPOLY

A revision in the final draft of the French petroleum bill which became a law and made effective since July 25 of this year provides a wider participation of the government in the monopoly. The law provides that the state has the right to choose a participation in the capital of Compagnie Francaise up to 35 per cent instead of 25 per cent and have voting power equivalent to 40 per cent against 30 per cent in the preliminary contracts. The state must make its choice by September 25.

The Compagnie Francaise de Raffinage, affiliate of Compagnie Francaise des Petroles, receives the right to refine in France 25 per cent of the combined oil and gasoline needs of all distributing concerns. These latter, however, by the final decree are not of necessity required to buy their refined products from the French monopoly. In turn, the Compagnie Francaise de Raffinage has the right to sell its products directly to the public.

As concerns the monopoly which the Compagnie enjoys of supplying all needs of the public services, the provision is made that such sales must be made at 2 per cent below average level of the market rather than exactly at this level, as previously provided for.

Compagnie Francaise des Petroles has the French quarter interest in Iraq Petroleum Co., which operates the valuable Mosul oil fields. The law of July 25 stipulates that the state has priority rights to 80 per cent of refined products coming from the French interest in Iraq Petroleum.

STANDARD OIL INDIANA FORMS NEW LUB COMPANY

CHICAGO, Sept. 5.—Standard Oil Co. of Indiana and Bendix Aviation Corp. announce the incorporation under a Delaware charter of a corporation to be jointly owned and operated by these companies for the manufacture and marketing of grease fittings for automobiles, industrial machinery, grease dispensing equipment and lubricants. Initial authorized capitalization of the new corporation is $200,000.

Experts in the Bendix laboratories have been working for more than a year in perfecting and testing new types of fittings and grease guns. These devices are protected by patents, some of which are based on inventions made before 1916. A feature of the new devices is facility in handling and the promotion of more thorough greasing through the use of higher pressures. Machine tools to be used in manufacturing the new equipment are being designed for installation at the Bendix plant at South Bend, Ind.

Special greases to be used with the new equipment have been developed by chemists at the Whiting, Ind., plant of Standard Oil Co. of Indiana. The present name, "The Lubrication Corp.," is temporary. Officers and directors of the new organization are R. P. Lansing, president; M. W. McConkey, vice president; Bruce K. Brown, vice president; J. A. Watson, secretary; W. J. Buettner, treasurer; and N. R. Grimshaw and L. C. Welch, directors. A. Y. Dodge is general manager. Messrs. Brown, Grimshaw, Welch and Watson are Standard of Indiana executives, and the remainder are Bendix executives.

E. A. JOHNSON TO TEXAS CITY

MIRANDO CITY, Tex., Sept. 5.—E. A. Johnson, superintendent of the Misko refineries for the past 4½ years, has resigned his position and will become associated with the Stone Oil Co. of Houston at its refinery in Texas City. The change was made effective August 31.

Mr. Johnson was formerly general manager of the Texas Mexican refinery of Laredo and previous to that started in the refinery business at Texas City in 1909 for the Pierce Oil Co. where he remained nine years.

O. W. Killam, president of the Misko Refineries, has named G. W. Estes as the new superintendent. Mr. Estes has been employed for several years at the Misko Refineries and was formerly superintendent of the Motor Fuel Products Co. plant at Laredo, Tex.

PHILIP L. DRAKE DIES

Philip L. Drake, who has been superintendent of the West Tulsa refinery of The Texas Company for several years, died suddenly September 5 at Austin, Tex., where he was visiting relatives. He had been in poor health for several months, but his sudden death was unexpected.

Mr. Drake has been in the employ of The Texas Company for 19 years. His first employment was at the Port Arthur, Tex., refinery of the company. Later he was transferred to Norfolk, Va., terminal and in 1921 he became assistant superintendent of the West Tulsa refinery. He served as superintendent of the Dallas, Tex., refinery from 1923 to 1926 and then returned to Tulsa as plant superintendent. He is survived by his widow and two brothers.

Manufacture of Natural Gasoline

California Natural Output and Stocks Decrease in July

Production and stocks of natural gasoline in California were materially reduced during July. One hundred twenty-four natural gasoline plants with a daily indicated capacity of 2,526,313,000 cubic feet, reported a recovery of 56,754,490 gallons of natural gasoline from 37,142,416,000 cubic feet of gas treated. This is a decrease of 1,275 bbls. in daily average production.

The utilization of natural gasoline, including shipments, amounted to 1,448,949 bbls., an increase over June of 167,455 bbls. The daily average utilization of 46,740 bbls. was 3,150 bbls. more than the daily average production of 43,590 bbls.

Stocks of natural gasoline at the end of July amounted to 1,698,168 bbls., of which 185,743 bbls. were reported by natural gasoline plant operators and 1,512,425 bbls. by refinery operators. This is a decrease of 97,652 bbls. under June stocks. This stock figure of 1,698,168 bbls. is approximately 36 days' supply at the current rate of consumption.

Following are the production figures for the different fields together with the volume of gas treated and the change in stocks:

CALIFORNIA NATURAL GASOLINE PRODUCTION, DISTRIBUTION AND STOCKS, JULY, 1931

Production by Fields

	Gas treated (M.C.F.)	Natural gasoline produced (gallons)
Fullerton and Whittier	698,488	1,668,106
Midway	1,771,396	3,268,866
Huntington Beach	552,055	1,727,020
Kettleman Hills	11,320,731	15,765,675
Long Beach	5,393,012	10,799,975
Richfield	450,773	603,058
Santa Fe Springs	6,645,469	9,924,456
Seal Beach	487,785	891,608
Ventura Avenue	4,516,530	4,351,820
All other fields	5,301,177	7,763,396
Total	37,142,416	56,754,490

Production by Methods

	Gas treated (M.C.F.)	Natural gasoline produced (gallons)
Oil absorption	36,976,566	56,554,845
Compressor	165,850	199,645
Total	37,142,416	56,754,490
Finished gasoline at plants, 137 bbls.		

Distribution

		Bbls.
Stocks first of month		1,795,820
Produced during month		1,351,297
Quantity mixed with crude or unfinished oils	104,983	
Used in blending at refineries	704,728	
Shipments	395,522	
Stocks end of month	1,698,168	
Balance*	243,715	
Total	3,147,117	3,147,117

Stocks

	Gallons	Bbls.
Natural gasoline held by natural gasoline plant operators	7,801,232	185,743
Natural gasoline held by refineries	63,510,090	1,512,425
Total	71,311,322	1,698,168

*Includes evaporation losses, purchase by jobbers for blending, etc.

EXPERIMENTAL BENZINE PLANT

CHATHAM, Ontario, Sept. 5.—Production of benzine from Turner Valley waste gas on an experimental scale will be commenced in the near future in a plant now being constructed by the Alberta government at Calgary. Construction of the plant has been under direction of Dr. E. H. Boomer, associate professor of chemistry at the University of Alberta, who will also have charge of its operation.

AIR-BUTANE PLANTS NOW SUPPLY GAS TO 90,000 WESTERN PEOPLE

One of the most important developments of the oil and gas industry over the past year has been the rapid increase in the use of butanes as a fuel for household heating. This is particularly applicable in the West Coast areas where numerous communities have been denied the use of gas and which may now be supplied from butane-air plants. The Pacific Public Service Corp., control of which is held by Standard Oil Co. of California, has been very active in this work, with three subsidiaries—Natural Gas Corp. of California, Natural Gas Corp. of Washington, and Natural Gas Corp. of Oregon. Collectively, these organizations now own and operate 19 air-butane gas plants in the area that is bounded on the north by the Canadian border and by the Mexican boundary line on the south, thus affording gas service to some 90,000 residents previously without it.

Until this development of air-butane gas plants, gas service was denied these communities, due to the high cost of construction and operation of the old-style manufactured gas plant, and because of their distance from gas fields with their interconnecting natural gas transmission lines to the industrial centers. With the advent of the new type of plant the comfort and convenience of clean, quick, and steady heat supplied by natural gas is brought within reach of these residents at rates that place it on an economical basis when compared with other fuels.

Concerning the "Bu-Gas" used by these plants: Its name is synthetic, coined and registered by the company. It is a liquefied hydrocarbon of exceptional purity and uniformity, consisting of butane (C_4H_{10}), isobutane and a negligible amount of propane.

It is a product of the plant of the Standard Gasoline Co. at Huntington Beach, and of the Richmond refinery, where additional equipment and storage facilities have been installed to supply the demands of the gas-operating companies.

Bu-Gas is shipped in specially designed tank cars, built to conform with Interstate Commerce Commission requirements and those of the American Society of Mechanical Engineers. They are of heavy steel construction, with riveted and welded seams. Those now in use are of approximately 10,000-gallon capacity type, equipped within the dome with special unloading ports, a repressure line connection, and the necessary safety blow-off valves and thermometer wells.

Upon arrival at its destination, the tank car loaded with Bu-Gas is spotted on the operating company's sidetrack, adjacent to special unloading terminals consisting of two liquid lines connected by means of a flexible hose with the tank car and lead underground to the liquid storage container on the plant grounds.

The liquid gas storage holders, similar in appearance and construction to the tank car, are placed horizontally on two piers, some 5 feet above the ground and adjacent to the plant building. The sizes of the tanks vary from 6 feet in diameter and 20 feet long to 8 feet in diameter and 40 feet long. In addition to properly installed safety valves and blow-off pipes, each tank is equipped with a liquid gauge calibrated in gallons, in order that the outgo may be recorded daily. At least a two weeks' supply of Bu-Gas remains in these tanks at all times, so as to guard against any possible shortage.

Storage is provided for the finished air-butane gas by means of a horizontal cylindrical steel tank, mounted similarly to the liquid storage holder, and ranging in size from 10 feet in diameter and 40 feet long to 12 feet in diameter and 50 feet long.

Finished gas storage is provided for approximately one-half an average day's demand in the community involved, thereby establishing a safety factor to offset any highly improbable temporary plant shutdown and assuring the consumer of uninterrupted service.

The plant building is entirely of fireproof construction, steel frames with red tile walls and red metal tile flooring. The building itself is divided into two rooms separated by a gasproof wall, with separate entrances to the gasproof room and the compressor room. The gasproof room contains the electrical control board and the automatic plant control apparatus. The wall of the gasproof room is provided with a window enabling the operator at the control apparatus to observe the functioning of the vaporization and carbureting machinery.

The remaining room in the building contains standard compressors driven by gasproof motors, liquid and gas pressure regulators, and incidental piping. When the pressure on the system reaches the 75-pound limit, the machinery is automatically stopped and no more gas is made until it descends to a 60-pound pressure. If the pressure of the liquid-storage tank reaches 75 pounds, the plant is also automatically shut down.

A sample line is taken from the storage tank, pressure reduced to the usual 6 or 8-inch water pressure, and run through a calorimetric Cutler-Hammer control. This control, when set at the B.t.u. value of 550, automatically operates the before-mentioned butterfly valve controlling the flow of the vapor.

A representative plant as described would have a capacity of about 150,000 cubic feet per day, while the average consumption will be only between 40,000 and 50,000 cubic feet—at least, during the first year. This means that ample provision has been made for immediate growth and expansion in each area.

Standard gas distribution systems are constructed in each town, and service is made from the central plant, just as is done in the case of ordinary manufactured gas. These plants differ from others found in the Pacific Coast area, in that they serve air-butane gas in high pressure systems, while others are of the undiluted butane and propane type, using low pressure systems.

As a result of the process herein briefly described the gas is found to be completely dehydrated, which, obviously reduces to a minimum maintenance difficulties usually experienced in other types of less dry gas. This clean, dry noncorrosive gas minimizes the necessity for gas appliance adjustments and lessens deterioration of mains and services, while the accurately regulated B.t.u. value of the gas produced insures dependable and constant service to the ultimate consumer.

During the past year plants of this type have been completed in Vacaville, Suisun-Fairfield, Rio Vista, Isleton, Brawley, Calexico, Dunsmuir, Yreka and Arcata, in California; Klamath Falls, La Grande, Bend, Coquille and Cottage Grove, in Oregon; Camas, Shelton, Anacortes, Port Townsend and Port Angeles, in Washington.

DAILY GASOLINE OUTPUT IN JULY IS LOWEST SINCE AUGUST, 1928

The total output of natural gasoline during July, 1931, was the same as in June, that is 147,900,000 gallons. Because of the difference in the length of the two months the July production represents a decline in daily average output of from 4,930,000 gallons in June to 4,770,000 gallons in July. The latter represents the lowest production rate attained since August, 1928. The decline in production in July was quite general throughout the various districts, the decline in the Appalachian fields being the most outstanding. Stocks of natural gasoline at the plants continued to decline though the slight drop in July, approximately 200,000 gallons, together with the continued decrease in output, indicates a material falling off in demand by refineries.

NATURAL GASOLINE STATISTICS FOR JULY

(Thousands of gallons)

	Natural gasoline: Production July, 1931	Production June, 1931	Production July, 1930	Production Jan.-July, 1931	Stocks end of month July, 1931	Stocks end of month June, 1931	Blended motor fuel July, 1931: Natural line used	Naphtha or other oils used	Stocks end of month
Appalachian	3,700	4,300	5,000	45,600	3,978	4,560	72	83	189
Ill., Ky., Ind.	600	600	700	5,300	451	443	...	...	...
Oklahoma	38,400	37,800	47,300	286,100	10,592	11,465	107	130	78
Okla. City	5,000	5,400	2,500	31,300	2,118	3,151	...	...	...
Osage County	5,000	5,000	6,300	39,700	2,218	1,950	...	...	6
Seminole	14,600	14,100	21,500	110,400	3,358	3,155	27	27	20
Rest of State	13,800	13,300	17,500	104,700	2,898	3,209	80	103	52
Kansas	2,200	2,200	2,400	17,900	1,792	1,951	32	16	11
Texas	34,000	34,300	40,500	258,100	9,600	9,275	165	261	72
Panhandle	16,800	16,600	20,500	123,700	4,908	4,955	96	52	27
North Texas	2,800	2,800	3,700	23,000	974	801	11	6	13
West Texas	9,600	9,700	12,600	75,100	2,856	2,573	58	203	32
Rest of State	4,800	5,200	3,700	36,300	862	946	...	...	...
Louisiana	4,200	4,000	5,500	31,400	751	737	23	8	3
Arkansas	2,300	2,300	2,700	17,300	273	232	200	179	36
Rocky Mountain	5,800	5,900	4,600	39,100	687	731	...	...	...
California	56,700	56,500	68,500	411,800	7,301	6,794	...	...	...
Huntington B.	1,700	1,700	2,700	12,900	....	....	...	...	...
Kettleman H.	15,800	15,600	14,200	104,300	....	....	...	...	...
Long Beach	10,800	10,900	14,400	84,600	....	....	...	...	...
Santa F. Spgs.	9,900	9,800	16,200	74,900	....	....	...	...	...
Ventura Ave.	4,300	4,400	5,000	32,600	....	....	...	...	...
Rest of State	14,200	14,100	16,000	102,500	....	....	...	...	...
Total	147,900	147,900	177,700	1,113,000	35,925	36,129	599	677	389
Daily avg.	4,770	4,930	5,730	5,230	....	....	19	22	12
Total (thousands of bbls.)	3,521	3,521	4,231	26,500	855	860	14	16	9
Daily avg.	113	117	136	125	....	....	...	...	...

OKLAHOMA GASOLINE PRICES DECLINE

(Continued from Page 12)

the supplies for a number of refineries in the Mid-Continent and Middle West will also tend to minimize the immediate importance of the East Texas operations. It is certain that as long as posted prices are maintained Oklahoma and Kansas refiners will not be able to offset their reduced crude oil supplies by tank car shipments from East Texas fields, a development which was gaining considerable momentum previous to the shut down in August.

The present posted price for East Texas crude oil plus freight charges of from 45 to 70 cents per barrel gives a net cost at Oklahoma and Kansas refineries, which is prohibitive.

Gasoline and Naphtha

Several Oklahoma refineries were quoting a low of 4½ cents the first of the week for U. S. Motor gasoline with a few large companies maintaining last week's quotation of 5 cents. At the same time two or three refiners in the State who are active on the spot market were forced to lower their price at 4¼ cents. With Texas material available at still lower prices there was relatively little open market trading at any price.

A few refiners and brokers who are expecting still lower prices were quoting under 4 cents for delivery over September. The uncertain condition of the market is indicated in the fact that even at these low speculative prices, there were few buyers.

The same reductions were made in the higher gravity gasolines as in the U. S. Motor grade with a number of refiners quoting the same on Tuesday as they were the first of the month. The few refiners in Oklahoma who make naphtha grades in Oklahoma have consistently reported a steady demand. In fact when U. S. Motor gasoline advances to 5 cents there were an exceptionally large number of buyers in the market and the demand exceeded the supply in Oklahoma.

Natural Gasoline

The situation in regard to natural gasoline is the same as that explained for refinery gasolines. Some manufacturers are sold up over the first half or the entire month and they have not lowered their quotations. At the same time weakness is apparent in the quotations of other manufacturers.

The market weakened to around 4 cents the first of the week in Texas which continues relatively weak when compared with the Oklahoma and Kansas market. To meet this competition, manufacturers in Oklahoma who had material to sell reduced their quotation on Grade AA to 4¼ cents.

Kerosene

East Texas kerosene quickly became a factor in the Mid-Continent market. The product which meets the specifications of most buyers was quoted as low as 1¾ cents, basis Group 3, for 41-43 water white. The same grade in Oklahoma was quoted at 2 to 2⅛ cents. Buying was slow on Monday and Tuesday.

Other Products

Gas oil quotations in this week's issue for the U.G.I. and high cold test grades were advanced to a low of 1⅛ cents from 1 cent. The quotation is more or less nominal in Oklahoma for there is little trading. However, the 1-cent material has been absorbed. Some observers feel that due to the resumption of operation in East Texas fields the demand for gas oil for cracking stock will not be as active. This demand last month was responsible for the advance from a low of five-eighths cent. Others are expecting a strong demand as long as there is a shortage of crude oil supplies in Oklahoma and Kansas.

While not actively traded the past week, zero grades of gas oil and the regular grades of furnace oil distillate continue firm in price.

The recent advances in bright stock prices are being maintained by refiners in Oklahoma. No changes were reported in neutral oils and wax.

RUSSIA HAS AMBITIOUS PROGRAM FOR OIL INDUSTRY NEXT TWO YEARS

By A. E. Mockler
New York Bureau, The Oil and Gas Journal

NEW YORK, Sept. 7.—The United Oil Industry (Soyuzneft) has completed plans for the further development of the Russian petroleum industry during 1932 and 1933, according to reports received here.

The program calls for the maximum exploitation of the old oil producing regions, particularly the Baku oil fields, and details covering the amount of drilling to be done in other regions are now being worked out.

The total output for 1932 is set at 35,000,000 tons, not including natural gas. Last year's production totaled 18,865,000 tons, while the plan for 1931 was set at 27,500,000 tons. Of next year's total the share of the Azneft (Azerbaidzhan) Oil Trust is set at 20,000,000 tons, of the Grozneft (Grozny) Oil Trust at 10,600,000 tons, of the Maikop fields 2,600,000 tons, and 250,000 tons for the rest of the North Caucasus. The program of the Embaneft Oil Trust is 400,000 tons, for the Sredazneft (Central Asiatic) Oil Trust, 400,000 tons, and for the Sakhalinneft Oil Trust 500,000 tons.

The 1933 program calls for an output of 46,000,000 tons distributed as follows: Azneft, 24,000,000 tons; Grozneft, 12,300,000 tons; Maikop, 3,500,000 tons; other North Caucasus fields, 1,800,000 tons (including 1,000,000 tons from Benol); Embaneft, 1,800,000 tons; Sakhalinneft, 1,200,000 tons; Sredazneft, 800,000 tons; Grozneft (Georgia), 300,000 tons; and Uralneft, 200,000 tons. The output of gas for 1932 is set at 1,600,000 tons and for the following year at 2,400,000 tons.

The program foresees the construction of a number of new oil refineries for the production of gasoline and other refined products. No new refineries for oil processing are planned for Baku, Grozny, Makhachkala, Batum, Tuapse and Krasnodar, as plants now being built at these points are expected to be completed. These include 30 additional cracking instillations at Grozny.

New construction activities of the Soviet oil industry, however, include the building of plants and cracking units for the manufacture of lubricants, asphalt, etc., at Moscow, Samara, and Stalingrad. These refineries will handle crude shipped from the Baku fields by tankers by way of the Volga River. The Soviet is building a number of large river tankers to be used in this service.

A plant to refine oil from the Maikop and Grozny Fields will be completed in Armavir, in the North Caucasus, and will be enlarged gradually as crude production in these fields increases.

Two refineries will be built to handle crude output from the Sakhalin district, one at Khabarovsk and the other at Vladivostok, with cracking units at each plant. A plant is also under construction in Kokand (Uzbekistan) for the working of crude from the Central Asiatic fields, which will also be enlarged in accordance with the requirements of the crude oil output.

The 1933 construction program aims to provide for additional oil produced in 1934, and includes the building of refineries for oil products from Georgia, the Urals, and Kazakstan. The construction of plants in the last-mentioned localities is conditional upon the results of exploration and drilling operations carried on in these regions this year and next year.

The entire plan for this year and for the next two years calls for the construction of new refineries of 25,000,000 tons capacity. The new cracking units to be installed number 105. The plan also includes the completion of the pipe line from Grozny to the Ukraine during 1932.

The Grozny-Armavir section of the present Grozny-Tuapse pipe line will be used for refined oil products instead of crude oil, this marking the first extensive use of pipe lines for transportation of gasoline in Russia, and following numerous important developments along this line in the United States and Rumania during the past few years.

Another pipe line is planned from Armavir in the North Caucasus to Lisky in the Central Black Soil region. The construction of this line, however, depends upon the results of prospecting operations in the Maikop Field. Should it be built this line will later be extended to Moscow.

A pipe line between the Temir oil field of the Embaneft and Aktubinsk (both in Kazakstan) is also planned for 1933. Altogether, the plan calls for the laying of 1,750 miles of pipe line within the next two years.

Announcement of the expansion plans of the Soviet oil trust for the coming two years do not indicate how much of the additional refinery equipment required will be purchased abroad, although it is expected that considerable of this business will be placed in the United States.

The Soviet, however, is equipping one of its larger metal plants for the manufacture of refinery equipment on a large scale, and it is possible that efforts will be made to supply most of the additional refinery equipment needed for future plants from the output of the new equipment factory.

R. D. BENSON DIES AT HIS LAKE PLACID HOME

NEW YORK, Sept. 5.—Robert Dix Benson, former chairman of the board of the Tide Water Oil Co., died at his country home, Camp Schonce, at Lake Placid, N. Y., of paralysis this week.

Mr. Benson was 70 years of age and had been engaged in the oil industry since he was 19, when he became secretary to his father, Byron David Benson, a pioneer in the development of the industry in Pennsylvania, who was then president of the Tide Water Pipe Co.,

R. D. Benson

Ltd. Robert Dix Benson was associated with Tide Water for almost half a century, during the period of its greatest development.

Mr. Benson's home was at Passaic, N. J., where funeral services were held at the First Presbyterian Church. Surviving are Mr. Benson's wife, the former Miss Harriet B. Granger, and two children, Byron David Benson and Mrs. John H. Carlisle. Another son, Robert, was killed in the World War.

Mr. Benson was born at Brewerton, N. Y., and was educated in the public schools and at the University of Pennsylvania. He held virtually every position and office in the Tide Water Oil Co., and in May, 1908, was elected president. He became chairman of the board in 1922, relinquishing that post a few years later. During the World War he was a member of the National Petroleum War Service Commission, and he was a director of the American Petroleum Institute.

OKLAHOMA CITY MEETINGS

Meetings of conservation officials of the southwestern oil producing states with oil company executives, and of the Oil States Advisory Committee, are scheduled to be held Friday, September 11, at the state house in Oklahoma City.

The purpose of the meetings is to discuss a uniform method of curtailing production and to hear a proposal for the unitization of the oil fields by sands and gauging the flow of oil by meters on individual wells.

Expected at the meeting are representatives from Oklahoma, Kansas, Texas, New Mexico, Louisiana and Arkansas, to discuss methods of prorating all flush oil fields.

OIL MAN'S CALENDAR

SEPTEMBER

12-Oct. 2 — Shanghai, China, First National Good Roads Exhibition and Congress.

14—New York, Bureau of Explosives Conference.

16-18—Atlantic City, N. J., annual meeting, National Petroleum Association, Hotel Traymore.

17-18—Detroit, Mich., Manufacturers Section, A.G.A., Book-Cadillac Hotel.

21-25—Boston, Mass., Exposition, American Society for Steel Treating.

23-26—Asheville, N. C., American Trade Association Executives.

24-25—Lufkin, Tex., Southwestern District, A.P.I. Division of Production, Angelina Hotel.

28-29—Atlantic City, N. J., National Association of Motor Bus Operators, Hotel Ambassador.

OCTOBER

2-3—Houston, Tex., Petroleum Division, American Institute of Mining and Metallurgical Engineers.

12-15—Birmingham, Ala., U. S. Good Roads Association Convention, Tutwiler Hotel.

12-16—Chicago, National Safety Council.

12-16—Atlantic City, N. J., American Gas Association.

14-16—Pittsburgh, Pa., Society of Industrial Engineers.

27-29—Washington, D. C., S.A.E. National Transportation and Maintenance Committee, Shoreham Hotel.

NOVEMBER

10-12—Chicago, twelfth annual meeting, American Petroleum Institute, Stevens Hotel.

16-21—Pittsburgh, Pa., third International Conference on Bituminous Coal, Carnegie Institute.

30-Dec. 4—New York, N. Y., Annual Meeting, American Society of Mechanical Engineers.

DECEMBER

7-12—Atlantic City, N. J., Trade Show, Motor and Equipment—National Standard Parts Association.

9-11—Atlantic City, N. J., American Institute of Chemical Engineers.

28-31—Tulsa, Okla., Geological Society of America, Mayo Hotel.

1932

JANUARY

9-15—Detroit, Mich., Convention and Road Show, American Road Builders Association, Airport Building.

9-16—New York, National Automobile Show.

30-Feb. 6—Chicago, Ill, National Automobile Show.

MARCH

17-19—Oklahoma City, Okla., American Association of Petroleum Geologists.

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

GASOLINE AND NAPHTHA

	Sept. 8		Sept. 1		Aug. 25	
OKLAHOMA (Group 3)—						
50-52 450 endpoint	.04¼	.04½	.04½		.04½	.04¾
56-58 450 endpoint	.04	.04⅛	.04½	.04¾	.04¾	.05
58-60 437 endpoint (U. S. Motor)	.04¼	.05	.04¾	.05¼	.05	.05¼
60-62 437 endpoint	.04¼	.05	.05	.05¼	.05	.05¼
60-62 400 endpoint	.04½	.05	.05⅛	.05⅜	.05⅛	.05¼
64-66 375 endpoint	.04¾	.05¼	.05¼	.05½	.05⅜	.05½
68-70 360 endpoint	.05	.05¼	.05½	.05¾	.05½	.05¾
64-66 437 endpoint (blend)	.04¼	.04½	.04½	.04¾	.04½	.04¾
NORTH TEXAS—						
50-52 450 endpoint	.04	.04¼	.04½		.04¾	
58-60 450 endpoint	.04	.04¼	.04½	.04¾	.04¾	
58-60 437 endpoint (U. S. Motor)	.04	.04½	.04⅜	.05	.05	
60-62 400 endpoint	.04¼	.04¾	.05	.05⅛	.05⅛	
64-66 390 endpoint	.04½	.04¾	.05⅛	.05¼	.05¼	
64-66 375 endpoint	.04¾	.05	.05⅜		.05⅜	
68-70 360 endpoint	.05	.05¼	.05½		.05½	
64-66 437 endpoint (blend)	.04¼	.04½	.04⅝	.04¾	.04¾	
***NORTH LOUISIANA—**						
58-60 437 endpoint (U. S. Motor)	.05	.05¼	.05¼	.05⅜	.05¼	.05½
***ARKANSAS—**						
58-60 437 endpoint (U. S. Motor)	.05	.05¼	.05¼	.05⅜	.05¼	.05½
PENNSYLVANIA—						
52-54 Naphtha	.05		.05		.04½	
54-56 Naphtha	.05		.05		.04½	
58-60 Gasoline	.05¾		.05¾		.05	
60 Gasoline	.05¾		.05¾		.05	
62 Gasoline	.05¾		.05¾		.05¼	
64 Gasoline	.05¾	.06	.05¾	.06	.05½	
68-70 350 endpoint gasoline	.06¼	.06½	.06¼	.06½	.05¾	
CALIFORNIA—						
†54-58 437 endpoint (U. S. Motor) domestic	.05½	.06½	.05½	.06¾	.05¼	.07
58-60 400 endpoint domestic gasoline	.05¾	.07	.05¾	.07¼	.05½	.07¼
CHICAGO DISTRICT (Based on Group 3)—						
50-52 450 endpoint (Naphtha)	.04	.04½	.04½	.04¾	.04½	.04¾
58-60 437 endpoint (U. S. Motor)	.04½	.04¾	.04⅞	.05⅛	.05	.05¼
60-62 400 endpoint	.04¼	.04½	.05¼	.05½	.05⅛	
64-66 375 endpoint	.04⅞	.05	.05½	.05⅝	.05½	
68-70 360 endpoint	.05	.05¼	.05½	.05⅝	.05½	.05⅝
64-66 437 endpoint (blend)	.04¼		.04½		.04½	
GULF COAST (Export)—						
58-60 U. S. Motor	.05		.05		.03¼	.03½
60-62 400 endpoint	.05⅛		.05⅛	.05¼	.03½	.03⅝
61-63 390 endpoint	.05¼		.05¼		.03⅝	.03¾
64-66 375 endpoint	.05½		.05½		.03⅝	.03¾

*Louisiana, Arkansas and Mississippi delivery. †For Pacific Coast consumption.

NATURAL GASOLINE

	Sept. 8		Sept. 1		Aug. 25	
OKLAHOMA (Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¼	.04½	.05¼		.05¼	
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¼		.05		.05	.05¼
Grade B, 76-83.9, 375 e.p., rec. 85%	.04¼		.04⅞		.05	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼		.04⅝		.05	
Grade C, 80-92, 375 e.p., rec. 78%	.04¼		.04¾		.05	
NORTH TEXAS—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¼		.05	.05¼	.05	.05⅛
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04		.04¾	.05	.04¾	
Grade B, 76-83.9, 375 e.p., rec. 85%	.04		.04¾		.04¾	
Grade BB, 84-92, 375 e.p., rec. 85%	.04		.04⅝		.04¾	
Grade C, 80-92, 375 e.p., rec. 78%	.04		.04¾		.04¾	
NORTH LOUISIANA—						
Grade AA, 80-87, 375 e.p., rec. 90%	.04¼		.05¼		.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼		.05¼		.05¼	
Grade C, 80-92, 375 e.p., rec. 78%	.04¼		.05⅛	.05¼	.05¼	
CALIFORNIA—						
75-78 375-390 endpoint	.04½	.05	.04½	.05¼	.04¼	.05¼
CHICAGO DISTRICT (Based on Group 3)—						
Grade A, 72-79.9, 375 e.p., rec. 90%	.04¼		.05¼		.05¼	.05⅜
Grade AA, 80-87.9, 375 e.p., rec. 90%	.04¼		.05	.05⅛	.05¼	
Grade BB, 84-92, 375 e.p., rec. 85%	.04¼		.04¾	.04⅞	.05¼	

BURNING OIL

	Sept. 8		Sept. 1		Aug. 25	
OKLAHOMA (Group 3)—						
41-43 water white kerosene	.02	.02⅛	.02	.02⅛	.02	.02⅛
42-44 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
NORTH TEXAS—						
41-43 water white kerosene	.01⅞	.02	.01⅞	.02	.01⅞	.02
40-41 water white kerosene	.01¾	.01⅞	.01¾	.01⅞	.01¾	.01⅞
***NORTH LOUISIANA—**						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
***ARKANSAS—**						
41-43 water white kerosene	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
PENNSYLVANIA—						
43 Kerosene prime white	.03⅝		.03⅝		.03⅝	
45 Kerosene water white	.03½		.03½		.03½	
46 Kerosene water white	.03⅞		.03⅞		.03⅞	
CALIFORNIA—						
38-40 water white Kero. (high burning test)	.04	.05	.04	.05	.04	.05
CHICAGO DISTRICT (Based on Group 3)—						
41-43 water white kerosene	.02	.02⅛	.02	.02⅛	.02	.02⅛
42-44 water white kerosene	.02⅛	.02¼	.02⅛	.02¼	.02⅛	.02¼
GULF COAST (Export)—						
41-43 prime white	.03½		.03½		.03½	
44 prime white	.03½	.03¾	.03½	.03¾	.03½	.03¾

*Louisiana, Arkansas, Mississippi and East Texas delivery.

FUEL OIL

	Sept. 8		Sept. 1		Aug. 25	
OKLAHOMA (Group 3)—						
Below 18 gravity Fuel Oil, per bbl.	.22½	.27½	.22½	.30	.22½	.30
18-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
20-22 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
22-26 Fuel Oil, per bbl.	.27½	.32½	.27½	.32½	.27½	.32½
24-26 Fuel Oil, per bbl.	.32½	.37½	.32½	.37½	.32½	.37½
26-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
28-30 Fuel Oil, per bbl.	.40	.45	.40	.45	.40	.45
32-36 Gas Oil (industrial)	.01⅛	.01¼	.01	.01⅛	.01	.01⅛
32-36 Gas Oil (straw color, high cold test)	.01⅛	.01¼	.01	.01⅛	.01	.01⅛
32-36 Gas Oil (straw color, low cold test)	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
36-38 Distillate	.01⅜	.01½	.01⅜	.01½	.01⅜	.01½
38-40 Straw Distillate	.01⅜	.01⅝	.01⅜	.01⅝	.01⅜	.01⅝

Note—Fuel oils over 40 cold test generally 5 to 10 cents per barrel less.

NORTH TEXAS—						
Below 20 gravity Fuel Oil, per bbl.	.20	.25	.20	.25	.20	.25
24-26 Fuel Oil, per bbl.	.25	.30	.25	.30	.25	.30
32-36 Gas Oil (industrial)	.00⅞	.01	.00⅞	.01	.00⅞	.01
38-40 Straw Distillate	.01¼	.01⅜	.01¼	.01⅜	.01¼	.01⅜
***NORTH LOUISIANA—**						
18-20 Fuel Oil, per bbl.	.45	.55	.45	.55	.45	.55
30-32 Gas Oil (low cold test)	.01½	.01¾	.01½	.01¾	.01½	.01¾
***ARKANSAS—**						
33-36 Distillate	.01¾	.02	.01¾	.02	.01¾	.02
30-32 Gas Oil	.01½	.01¾	.01½	.01¾	.01½	.01¾
16-22 Refinery Fuel Oil, per bbl.	.45	.50	.45	.50	.45	.50
GULF COAST (South Texas)—						
Gas Oil	.02½	.02¾	.02½	.02¾	.02½	.02¾
Bunker C Fuel (cargo lots), per bbl.	.45	.50	.45	.50	.45	.50
Bunker C Fuel (small lots)	.55		.55		.55	
PENNSYLVANIA—						
30-34 Fuel Oil	.02¾	.03	.02¾	.03	.02½	
36-40 Fuel Oil	.03		.03		.02¾	
CALIFORNIA—						
42-45 480 endpoint engine distillate	.05½	.06½	.05½	.06½	.05½	.06½
15-19 Fuel Oil, Bunker (at tidewater), bbl.	.60	.80	.60	.80	.60	.80
15-19 Fuel Oil (cargo lots, at tidewater), bbl.	.55	.75	.55	.75	.55	.75
†15-19 Fuel Oil (f.o.b. tank cars), bbl.	.45	.75	.45	.75	.45	.75
27 plus Diesel, per bbl.	.70	.95	.70	.95	.70	.95
30-34 Gas Oil	.70	.95	.70	.95	.70	.95
CHICAGO DISTRICT (Based on Group 3)—						
18-22 Fuel Oil, per bbl.	.25	.27½	.22½	.27½	.20	.27½
22-26 Fuel Oil, per bbl.	.27½	.35	.27½	.30	.25	.30
28-30 Fuel Oil, per bbl. (zero)	.42½	.47½	.42½	.47½	.42½	.45
32-36 Gas Oil (industrial)	.01⅜	.01⅝	.01	.01⅛	.00⅞	.01
32-36 Gas Oil (zero)	.01⅜	.01½	.01¼	.01½	.01¼	.01⅜
38-40 Straw Distillate	.01½	.01¾	.01⅜	.01⅝	.01¼	.01½

*Louisiana, Arkansas, Mississippi and East Texas delivery. †Lowest priced fuel oil has high sulphur content.

LUBRICATING OIL AND WAX

	Sept. 8		Sept. 1		Aug. 25	
OKLAHOMA (Group 3)—						
100 vis., 2 color, 20-25 cold test	.04	.04½	.04	.04½	.04	.04½
100 vis., 3 color, 20-25 cold test	.03¾	.04	.03¾	.04	.03¾	.04
150 vis., 3 color, 20-25 cold test	.06¼	.06¾	.06¼	.06¾	.06¼	.06¾
150 vis., 4 color, 20-25 cold test	.05¾	.06	.05¾	.06	.05¾	.06
180 vis., 3 color, 23-28 cold test	.07¾	.08¼	.07¾	.08¼	.07¾	.08¼
180 vis., 4 color, 23-28 cold test	.07¼	.07¾	.07¼	.07¾	.07¼	.07¾
180 vis., 5 color, 23-28 cold test	.07	.07¼	.07	.07¼	.07	.07¼
200 vis., 3 color, 23-28 cold test	.08¼	.09	.08½	.09	.08¼	.09
200 vis., 4 color, 23-28 cold test	.08¾	.08¾	.08¾	.08¾	.08¾	.08¾
200 vis., 5 color, 23-28 cold test	.07¾	.08	.07¾	.08	.07¾	.08
240 vis., 3 color, 25-30 cold test	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
240 vis., 4 color, 25-30 cold test	.09½	.10	.09½	.10	.09½	.10
240 vis., 5 color, 25-30 cold test	.09	.09½	.09	.09½	.09	.09½
280 vis., 3 color, 25-30 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
280 vis., 4 color, 25-30 cold test	.10¾	.11¼	.10¾	.11¼	.10¾	.11¼
280 vis., 5 color, 23-28 cold test	.10¼	.10½	.10¼	.10½	.10¼	.10½
Cylinder Stocks:						
600, steam refined, light green	.04	.06	.04	.06	.04	.06
600, steam refined, dark green	.03½	.04½	.03½	.04½	.03	.03½
190-200 vis., D color, Bright Stocks	.19		.19		.19	
150-160 vis., D color, Bright Stocks 0-10 c.t.	.17		.17		.16	.17
150-160 vis., D color, Bright Stocks 10-25 c.t.	.16½		.16½		.15½	.16½
150-160 vis., D color, Bright Stocks 25-40 c.t.	.16	.16½	.16	.16½	.15	.16
150-160 vis., E color, Bright Stocks	.15½	.16	.15½	.16	.15	.16
Waxes:						
124-126 White Crude Scale Wax	.01⅝	.01⅞	.01⅝	.01⅞	.01⅝	.01¾

All bright stock prices are for domestic movement.

PENNSYLVANIA—						
34 Neutral	.05½		.05½		.05½	
34 Sundebloom	.05	.05½	.05	.05½	.05	.05½
36 Miners' Neutral	.05½		.05½		.05½	
150, 3 color	.16½	.17	.15½	.16	.15½	
180, 3 color	.17½	.18	.17¾	.18	.17¾	.18
200, 3 color	.20½	.21	.20		.20	
220, 3 color	.22	.26½	.22	.26½	.22	.26½
600, steam refined	.13½	.14½	.12	.13	.11½	.12
650, steam refined	.17	.18	.13½	.14½	.13½	.14
600, Pennsylvania Flash	.18½	.19	.18½	.19	.16	
600, E filtered	.18		.18		.16	
600, D filtered, Oil City	.22	.23½	.20	.21	.20	
Pennsylvania Bright Stocks below 35 c.t.	.29		.28		.26	
Pennsylvania Bright Stocks above 35 c.t.	.28½	.29	.27½	.28	.25	.26
*122-124 White Crude Scale Wax	.019	.02	.019	.02	.019	.02
*124-126 White Crude Scale Wax	.019		.019		.019	

*At New York.

GULF COAST (South Texas)—						
100 vis., 2-2½ color, pale oil	.05½	.05¾	.05½	.05¾	.05½	.05¾
200 vis., 3 color, pale oil	.07½	.07⅝	.07½	.07⅝	.07½	.07⅝
300 vis., 3 color, pale oil	.08¾	.08⅞	.08¾	.08⅞	.08¾	.08⅞
500 vis., 3½ color, pale oil	.09⅞	.10¾	.09⅞	.10¾	.09⅞	.10¾
750 vis., 3½ color, pale oil	.11⅜	.11⅞	.11⅜	.11⅞	.11⅜	.11⅞
1,200 vis., 3½ color, pale oil	.13⅞	.14⅜	.13⅞	.14⅜	.13⅞	.14⅜
2,000 vis., 4 color, pale oil	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
200 vis., 5-6 color, red oil	.06¾	.06⅞	.06¾	.06⅞	.06¾	.06⅞
300 vis., 5-6 color, red oil	.07⅞	.08⅜	.07⅞	.08⅜	.07⅞	.08⅜
500 vis., 5-6 color, red oil	.09½	.09⅝	.09½	.09⅝	.09½	.09⅝
1,200 vis., 5-6 color, red oil	.12⅞	.13⅜	.12⅞	.13⅜	.12⅞	.13⅜
2,000 vis., 6 plus color	.14⅞	.15⅜	.14⅞	.15⅜	.14⅞	.15⅜
CALIFORNIA—						
130 vis., 2½-3 color	.08	.08½	.08	.08½	.08	.08½

REFINERY AND CRUDE PRICES

Quotations on refined products are for interstate or export movement unless otherwise noted.

200 vis., 2½-3 color	.09	.10	.09	.10	.09	.10
300 vis., 3-3½ color	.10	.11	.10	.11	.10	.11
350 vis., 3½-4 color	.11	.12	.11	.12	.11	.12
450 vis., 3½-4 color	.12	.12½	.12	.12½	.12	.12½
550 vis., 3½-4 color	.12½	.13¼	.12½	.13¼	.12½	.13¼
Red Neutral:						
200 vis., 4½-5 color	.09½	.10	.09½	.10	.09½	.10
300 vis., 5-6 color	.10¼	.10¾	.10¼	.10¾	.10¼	.10¾
500 vis., 4½-5 color	.12¼	.13	.12¼	.13	.12¼	.13
600 vis., 6½ plus color	.13	.13½	.13	.13½	.13	.13½
700 vis., 6½ plus color	.14	.15	.14	.15	.14	.15

Note—Bright stocks are not manufactured commercially on the Pacific Coast.

NEW YORK (BAYONNE) EXPORT PRICES

	Sept. 8		Sept. 1		Aug. 25	
Gasoline, U. S. Motor, 58-60, 437 e.p.	.06	.06½	.05½	.06	.05⅛	.06
Kerosene, water white, 41-43	.04¾		.04¾		.04¾	
*Fuel Oil, Bunker "C," 41-43	.70		.70		.70	
†Fuel Oil, Diesel, 28-30, per bbl.	1.40		1.40		1.40	
Gas Oil, 28 gravity plus	.04		.04		.04	
25 pale Paraffin Oil, tank car	.10¼		.10¼		.10¼	
28 pale Paraffin Oil, tank car	.07¼		.07¼		.07¼	
280 red Paraffin Oil, tank car	.12½		.12½		.12½	
250 red Paraffin Oil, tank car	.11½		.11½		.11½	
225 red Paraffin Oil, tank car	.10		.10		.10	
200 red Paraffin Oil, tank car	.09¼		.09¼		.09¼	
Domestic heating oil, min. 32 grav., tank car	.04		.04		.04	
Refined Wax:						
120-122 a.m.p., per lb.	.03		.03		.03	
125-127 a.m.p., per lb.	.03⅛		.03⅛		.03⅛	
130-132 a.m.p., per lb.	.03⅝		.03⅝		.03⅝	
133-135 a.m.p., per lb.	.04⅛		.04⅛		.04⅛	
135-137 a.m.p., per lb.	.04⅝		.04⅝		.04⅝	
Petrolatum in barrels in carload lots, per pound:						
Dark Green	.01¾		.01⅝		.01⅝	
Amber	.02¾		.02⅝		.02⅝	
Extra Amber	.03		.02⅞		.02⅞	
Cream	.05¾		.05⅝		.05⅝	
Lily White	.06⅝		.06½		.06½	
Snow White	.07¼		.07		.07	

*Lighterage 5 cents a barrel extra. †Lighterage 6.5 cents a barrel.

NEW YORK (BAYONNE) REFINERY PRICES

	Sept. 8		Sept. 1		Aug. 25	
600, steam refined cylinder stocks, in bbls.	.18½	.19	.17½	.18	.17½	.18
635, steam refined	.20½	.21	.19	.20	.19	.20
650, steam refined	.21	.22	.20	.21	.20	.21
600, Pennsylvania Flash	.23	.24	.22	.23	.22	.23
630, Pennsylvania Flash	.28½	.29	.27⅞	.28	.27⅞	.28
600, Warren E	.23	.24	.22	.23	.22	.23
600, Oil City E	.22	.23	.21	.22	.21	.22
Light 140-150 Bright Stocks	.31	.32	.30	.33	.30	.33
Dark 140-150 Bright Stocks	.30	.31	.29	.31	.29	.31

LOS ANGELES EXPORT PRICES

	Sept. 8		Sept. 1		Aug. 25	
Kerosene, water white	.04	.04¾	.04	.04¾	.04	.05
U. S. Motor gasoline, 53-55, 437 e.p.	.03¾	.04½	.03½	.04	.03¾	.04½
58-60, 400 endpoint gasoline	.04	.04¾	.03¾	.04¼	.04	.04¾

CRUDE OIL PRICES

OKLAHOMA, KANSAS, NORTH AND EAST CENTRAL TEXAS

East Texas† ..... $ .68
Rusk County, Tex. (April 6, 1931)* ..... .25
Corsicana heavy (Aug. 22, 1931)† ..... .34
Other fields ..... See gravity table

*Posted by Panola Pipe Line Co. †Posted by Magnolia Petroleum Co., Aug. 22, 1931; Tidal Refining Co., Sept. 2; Gulf Pipe Line Co., Sept. 3; Sinclair Refining Co., Sept. 3.

TEXAS PANHANDLE

Gray County, Wheeler County and Carson-Hutchinson Counties. See gravity table

WEST TEXAS

Iatan and Westbrook. Same as North Texas
Crane, Upton, Crockett, Howard, Glasscock, Ector, Winkler and Pecos Counties* ..... $ .35
Lea County, N. Mex.* ..... .35
Toborg, Pecos County, Aug. 25, 1931†.. .25

*The Texas Company, August 22, 1931. All other companies, August 22. †Shell Petroleum Corp.

EASTERN STATES

Joseph Seep Purchasing Agency
(Effective August 29, 1931)

Penna Grade Oil in National Transit Lines (Pennsylvania) $1.80
Pennsylvania Grade Oil in Southwest Pennsylvania Lines 1.65
Penna Grade Oil in Eureka Pipe Line Lines (West Virginia) 1.55
Penna Grade Oil in Buckeye Pipe Line Lines (Sept. 4, 1931) 1.45
Corning Grade Oil in Buckeye Pipe Line Co.'s Line (Sept. 4, 1931) ..... .75
Ragland Grade Oil in Cumberland Pipe Lines (Kentucky) (Jan. 10, 1931).... .60
Wayne district Oil in Cumberland Pipe Lines (April 22, 1931) 1.17

Tide Water Pipe Co.
(Effective August 29, 1931)

Bradford, Pa., crude $2.10
Allegany, N. Y., crude 2.10

Pure Oil Co.
(Effective August 29, 1931)

Cabin Creek, W. Va. $1.55
Kelly's Creek, W. Va. 1.55
Bradford Hollow, W. Va. 1.55

GULF COAST

Grade A and Grade B classifications discontinued by leading buyers ..... See gravity table
Jennings, La. (Aug. 22, 1931)* ..... $ .50
Lockport, La. (Aug. 27, 1931)† ..... See Gulf Coast gravity table
Refugio light ..... See gravity table
Refugio heavy (Aug. 22, 1931)‡ ..... .60
Markham (Aug. 22, 1931)‖ ..... .52
..... See Gulf Coast gravity table
High Island (Aug. 22, 1931)¶ ..... .50

*Gulf Refining Co. †Vacuum Oil Co. ‡Humble Oil & Refining Co. §The Texas Company. Other companies July 24. ¶Gulf Pipe Line Co.

NORTH LOUISIANA AND ARKANSAS

Smackover, Ark. (all grades) See note below
Urbana, Ark. ..... See note below
Bellevue, La. (June 3, 1931) ..... $ .25
Urania, La. (Aug. 24, 1931) ..... .40
Calion, Ark. (Aug. 22, 1931) ..... .52
East El Dorado, Ark. (Aug. 22, 1931).. .45
Stephens, Ark., below 29° (August 24, 1931) ..... .41
Stephens, Ark., 29° and above (August 24, 1931) ..... .44
Other fields ..... (See gravity table)

Note—Smackover, all grades, The Texas Company, August 22, 1931, 52 cents; Gulf Refining Co., August 22, 45 cents; Magnolia Petroleum Co. and Standard Oil of Louisiana, August 24, 45 cents. Urbana posting discontinued by Standard Oil Co. of Louisiana on August 24, 1931. Bellevue posted by Magnolia Petroleum Co.; Urania by Louisiana Oil Refining Co.; Calion by Gulf Refining Co.; East El Dorado by Gulf Refining Co. and Magnolia Petroleum Co.; Stephens, Ark., by Louisiana Oil Refining Co. and Atlantic Oil Producing Co.

SOUTH CENTRAL AND SOUTHWEST TEXAS

Darst Creek (Aug. 22, 1931)* ..... $ .52
Luling (Aug. 22, 1931)† ..... .34
Mirando (Aug. 22, 1931)* ..... .60
Pettus (Aug. 22, 1931)* ..... .70
Salt Flat (Aug. 22, 1931)* ..... .52

(Continued on Page 94)

CRUDE OIL GRAVITY TABLE

Gravity	Okla., Kans., East Central and North Central Tex. (1)	Oklahoma, Kansas. (2)	North Louisiana and Arkansas (3)	Gray County, Texas (4)	Hutchinson, Carson and Moore Counties, Texas (5)	Gray County, Texas (6)	Carson and Hutchinson Counties, Tex. (7)	Salt Creek, Wyo. (8)	Gulf Coast (9)
Below 25 degrees	...	...	...	...	...	...	...	...	.55
25-25.9 degrees	...	...	...	...	...	...	...	...	.56
26-26.9 degrees	...	...	...	...	...	...	...	...	.57
27-27.9 degrees	...	...	...	...	...	...	...	...	.58
28-28.9 degrees	...	...	...	...	...	...	...	...	.59
Below 29 degrees	.46	...	.46	...	...	...	...	.46	...
29-29.9 degrees	.48	.78	.48	...	...	...	...	.48	.60
30-30.9 degrees	.50	.80	.50	...	...	...	...	.50	.61
31-31.9 degrees	.52	.82	.52	...	...	...	...	.52	.62
32-32.9 degrees	.54	.84	.54	...	...	...	...	.54	.63
33-33.9 degrees	.56	.86	.56	...	...	...	...	.56	.64
34-34.9 degrees	.58	.88	.58	.60	.48	.46	.41	.58	.65
35-35.9	.60	.90	.60	.62	.50	.48	.43	.60	.66
36-36.9 degrees	.62	.92	.62	.64	.52	.50	.45	.62	.67
37-37.9 degrees	.64	.94	.64	.66	.54	.54	.47	.64	.68
38-38.9 degrees	.66	.96	.66	.68	.56	.54	.49	.64	.69
39-39.9 degrees	.68	.98	.68	.70	.58	.56	.51	.64	.70
40 degrees and above	.70	1.00	.70	.72	.60	.58	.53	.64	.71

Note—Magnolia Petroleum Co. does not pay on a gravity basis. The Magnolia company posted the following notices on August 22 and August 24 as indicated in the notices:

"Effective August 22, 1931, and until further notice our prices on crude oil will be as follows per barrel at the wells: Central Texas, which includes only Mexia, Wortham, Corsicana light, Panola County, and Lytton Springs, 64 cents; Panhandle district of Texas, Gray County, 58 cents; Carson and Hutchinson Counties, 51 cents; West Texas, being Crane, Upton, Howard, Glasscock and Mitchell Counties, 35 cents; Mirando, 60 cents; Darst Creek, 52 cents; Luling, 34 cents; Corsicana heavy, 34 cents. Oklahoma, including Cushing, Yale, Oklahoma City, Morrison, Wewoka and Seminole, 68 cents; Cement, Duncan, and Walters, 60 cents; Healdton, 37 cents; Hewitt and Graham, 52 cents. North and Central Texas, including only Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden, 68 cents; East Texas, 68 cents.

"Effective August 24, 1931, and until further notice our prices on crude oil in the states of Louisiana and Arkansas will be as follows per barrel at the wells: Louisiana, Bull Bayou, 68 cents; Haynesville, 50 cents; Pine Island, 58 cents; Cotton Valley, 46 cents. Arkansas, El Dorado and Rainbow, 48 cents; El Dorado East Field and Smackover district, 45 cents."

Colmun 1—The Texas Company (excepting Kansas), August 22; Gypsy Oil Co., Gulf Pipe Line, Carter Oil Co., Humble Oil & Refining Co., Stanolind Crude Oil Purchasing Co., Sinclair Refining Co., Continental Oil Co., Skelly Oil Co. (Kansas), Empire Pipe Line Co., Wilcox Oil & Gas Co., Tidal Refining Co., Pure Oil Co., Vickers Petroleum Co., Derby Oil Co., all on August 22.

Column 2—Phillips Petroleum Co., August 24.

Column 3—The Texas Company, August 22; Gulf Refining Co., August 22; Standard Oil Co. of Louisiana, August 24; Louisiana Oil Refining Co., August 24.

Column 4—Phillips Petroleum Co., August 24; Wilcox Oil & Gas Co., August 24.

Column 5—Phillips Petroleum Co., August 24.

Column 6—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22.

Column 7—The Texas Company, August 22; Gulf Pipe Line Co., August 22; Humble Oil & Refining Co., August 22.

Column 8—The Mid West Refining Co., August 22.

Column 9—The Texas Company, August 22; Humble Oil & Refining Co. and Gulf Pipe Line Co. on August 22 but their price schedule stops at 35 and above at 66 cents. Sun Co. and Sinclair Refining Co. met Humble-Gulf prices effective August 22, but Sun Co. posted a price of 55 cents for Grade A oil, it being the only company that maintains A and B grade classifications. The Vacuum Oil Co. applied the schedule to Lockport on August 27.

CALIFORNIA CRUDE OIL PRICES

STANDARD OIL CO. OF CALIFORNIA

For its current purchases of crude oil at the well (unless otherwise specified) for allowable crude oil produced in accordance with allocations made by the California Statewide Curtailment Committee. All gravities above those quoted take highest price offered in that field. Effective June 19, 1931, at 7 a. m.

Gravity	Signal Hill	Seal Beach, Alamitos Heights	Huntington Beach	Inglewood	Olinda-Brea Canon	Torrance	Richfield	Coyote Hills	Santa Fe Springs	Midway-Sunset, Elk Hills, Buena Vista Hills	Lost Hills
14-14.9	$.65	$.65	$.65	$.65	$.65	$.65	$.65	$.65	...	$.55	$.55
15-15.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
16-16.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
17-17.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
18-18.9	.65	.65	.65	.65	.65	.65	.65	.65	...	.55	.55
19-19.9	.65	.65	.65	.65	.66	.66	.66	.65	...	.55	.55
20-20.9	.65	.65	.65	.66	.66	.66	.65	.65	...	.55	.55
21-21.9	.65	.65	.65	.68	.67	.66	.66	.65	...	.55	.57
22-22.9	.65	.65	.66	.70	.68	.66	.68	.65	...	.56	.59
23-23.9	.67	.67	.68	.72	.70	.67	.70	.66	...	.58	.60
24-24.9	.69	.69	.70	.74	.72	.68	.72	.67	$.65	.61	.62
25-25.9	.71	.71	.72	.76	.74	.70	.74	.69	.65	.64	.64
26-26.9	.73	.73	.74	...	.76	...	...	.71	.65	.66	.66
27-27.9	.75	.75	.76	...	.78	...	...	.73	.68	.68	.67
28-28.9	.77	...	...	...	.80	...	...	.75	.71	.71	.69
29-29.9	.79	...	...	...	...	...	...	.77	.73	.74	.71
30-30.9	.81	...	...	...	...	...	...	.79	.75	.76	.73
31-31.9	...	...	...	...	...	...	...	...	.78	...	...
32-32.9	...	...	...	...	...	...	...	...	.80	...	...
33-33.9	...	...	...	...	...	...	...	...	.83	...	...
34-34.9	...	...	...	...	...	...	...	...	.85	...	...
35-35.9	...	...	...	...	...	...	...	...	.87	...	...

Standard Oil Co. of California prices in other fields:

Wheeler Ridge—55 cents per barrel for all grades (14° to 25.9°).

Coalinga—55 cents for all grades from 14° to 24-24.9°; 57 cents for 25 gravity.

Newhall, McKittrick and Kern River—55 cents for all grades (14° to 19.9°).

Montebello—65 cents for all grades (14° to 25.9°).

Whittier and LaHabra—65 cents for all grades (14° to 22.9°).

Elwood Terrace, f.o.b. ship—33° to 33.9°, 79 cents; 34° to 34.9°, 81 cents; 35° to 35.9°, 84 cents; 36° and above 87 cents.

Playa Del Rey—Prices subject to field gathering charge of 5 cents per barrel—19° to 19.9°, 65 cents; 20° to 20.9°, 65 cents; 21° to 21.9°, 66 cents; 22° to 22.9°, 67 cents; 23° to 23.9°, 68 cents; 24° to 24.9°, 67 cents; 25° and above, 68 cents.

ASSOCIATED OIL CO. PRICES

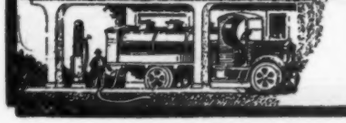
Associated Oil Co. prices, effective June 20, are as follows:

Ventura Avenue, 22 gravity, 58 cents, with 2 cents added for each degree upward to and including 30 gravity, which is 74 cents.

Kettleman Hills, 30 gravity and above, 66 cents.

Potrero, 24 gravity, 69 cents with 2 cents added for each degree upward to 34 gravity, which is 69 cents.

(Continued on Page 103)



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States as furnished by the larger marketing concerns Sept. 8

ALL TANK WAGON AND SERVICE STATION QUOTATIONS INCLUDE TAXES

STANDARD OIL CO. (INDIANA)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Chicago	14.6	14.0	3.0	9.0
Decatur, Ill.	14.4	14.4	3.0	9.0
E. St. Louis	13.7	13.7	3.0	8.2
Joliet	14.4	14.4	3.0	9.0
Peoria	14.4	14.4	3.0	9.0
Quincy	14.2	14.2	3.0	8.8
Davenport, Ia.	14.5	14.5	3.0	9.3
Des Moines	14.5	14.5	3.0	9.3
Keokuk	14.5	14.5	3.0	9.3
Sioux City	14.1	14.1	3.0	8.9
Duluth, Minn.	15.5	15.5	3.0	9.9
Mankato	15.1	15.1	3.0	9.7
Minneapolis	15.2	15.2	3.0	9.9
La Crosse, Wis.	16.2	16.2	4.0	10.0
Milwaukee	15.1	15.1	4.0	8.9
Madison	15.3	15.3	4.0	9.1
Detroit, Mich.	14.8	14.8	3.0	10.7
Grand Rapids	14.7	14.7	3.0	10.6
Saginaw	14.9	14.9	3.0	10.8
Evansville, Ind.	15.1	15.1	4.0	9.9
Indianapolis	15.3	15.3	4.0	10.1
South Bend	15.4	15.4	4.0	10.2
Fargo, N. D.	16.9	16.9	3.0	11.9
Huron, S. D.	16.3	16.3	4.0	10.7
Sioux Falls	15.8	15.8	4.0	10.4
K. C., Mo.	13.9	13.9	3.0	7.6
Springfield*	13.9	13.9	3.0	8.5
St. Louis*	12.9	13.9	2.5	8.3
St. Joseph	13.5	13.5	3.0	7.5
Wichita, Kans.	13.8	13.8	3.0	7.8
Bartlesville, Okla.	13.0	16.0	5.0	7.5

*State tax 2 cents, remainder city tax.

A third grade of gasoline, "Stanolind Blue," is sold at all major points at a price 2 cents or more below the price on the regular grade.

Effective April 15—Discounts on Q.D.A. on 1,000 gallons or more per month throughout territory; Red Crown Ethyl Gasoline, 3 cents off tank wagon price; Red Crown gasoline, 2½ cents off tank wagon price; Stanolind Blue gasoline, 1 cent off tank wagon price. On deliveries of 75,000 gallons or more each classification allowed 1 cent additional discount.

Discounts on resellers authorized agent's agreement: Same amounts as above except made off service station price instead of tank wagon price.

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Dallas, Tex.	13.0	14.0	4.0	8.0
Fort Worth	13.0	14.0	4.0	8.0
Houston	12.0	14.0	4.0	11.0
San Antonio	12.0	14.0	4.0	10.0
El Paso	14.0	16.0	4.0	12.0
Texarkana	12.0	14.0	4.0	11.0
Muskogee, Okla.	11.0	13.0	5.0	8.0
Okla. City	14.0	16.0	5.0	7.0
Tulsa	13.0	15.0	5.0	8.0
Ft. Smith, Ark.	14.5	16.5	5.0	11.0
Little Rock	16.0	17.0	6.0	11.0

One-cent rebate made from posted station prices to cash purchasers in Louisiana, Arkansas and Tennessee.

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Omaha	15.25	16.25	4.0	9.25
McCook	16.0	17.75	4.0	10.75
Norfolk	15.75	16.75	4.0	9.75
N. Platte	16.75	17.75	4.0	10.50
Scottsbluff	16.0	16.0	4.0	10.25

Note—Dealers' discount allowed as follows: Red Crown Ethyl, 3 cents off station price; Red Crown, 2½ cents off normal station price; Red Crown, 2½ cents off normal service station price; Nabraska Blue (third grade) 1 cent off normal service station price.

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Denver, Colo.	16.0	19.0	4.0	12.5
Pueblo	16.0	19.0	4.0	13.0
Grand Jctn.	18.0	21.0	4.0	14.5
Casper, Wyo.	15.0	18.0	4.0	10.0
Cheyenne	16.5	19.5	4.0	11.5
Butte, Mont.	17.0	20.0	5.0	10.0
Billings	20.0	23.0	5.0	14.5
Great Falls	21.0	23.0	5.0	16.0
Helena	21.0	24.0	5.0	16.0
Salt Lake, Utah	18.5	21.5	4.0	16.0
Albu'que, N.M.*	18.0	21.0	6.0	14.0
Boise, Idaho	21.5	24.5	5.0	18.0
Twin Falls	20.5	23.5	5.0	18.0

*One-cent excise city tax.

PACIFIC COAST TERRITORY

	Gasoline			Kero.
	Wh'is'e price	Retail* price	Incl'ds tax	tank wagon
Fresno	19.5	16.5	3.0	17.0
San Francisco	19.5	16.5	3.0	15.5
Los Angeles	19.0	16.0	3.0	15.5
Reno, Nev.	23.5	20.5	4.0	19.0
Portland, Ore.	21.0	18.0	4.0	16.5
Seattle, Wash.	22.0	19.0	5.0	16.5
Tacoma	22.0	19.0	5.0	16.5
Spokane	25.5	22.5	5.0	20.5
Phoenix, Ariz.	15.5	17.5	5.0	20.0

Above prices are at company's plant or depots as company does not operate stations. A 6-cent per gallon discount is given dealers and customers taking tank wagon lots except in Phoenix where the discount is 3 cents plus a 2-cent special temporary discount subject to withdrawal at any time.

*Retail prices posted by Standard Stations, Inc., a subsidiary.

PENNSYLVANIA-DELAWARE AND PART OF NEW ENGLAND

Atlantic Refining Co.

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Pittsburgh, Pa.	*10.0	*11.0	...	11.0
Philadelphia	*10.0	.10.0	...	11.0
Scranton	*10.0	*11.0	...	11.0
Allentown	*10.0	*11.0	...	11.0
Altoona	*10.0	*11.0	...	11.0
Erie	*10.0	*11.0	...	11.0
Dover, Del.	13.0	14.0	3.0	11.0
Wilmington	13.0	14.0	3.0	11.0
Springf'd, Mass.	13.5	14.5	3.0	10.0
Worcester	13.3	14.3	3.0	10.0
Boston	13.0	15.0	3.0	10.0
Providence, R.I.	11.7	12.7	2.0	10.0
Hartford, Conn.	13.5	14.5	2.0	10.0
New Haven	13.6	14.6	2.0	10.0

*Does not include tax of 3 cents in Pennsylvania. Pennsylvania tax is collected by the dealer and paid by him direct to the State. The above prices are subject to discounts to dealers and to commercial accounts under contract for one year in accordance with Code of Ethics.

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
N. Orleans, La.	16.0	15.0	6.0	13.0
Baton Rouge	15.0	16.0	5.0	12.0
Alexandria†	16.0	17.0	6.0	12.0
Lafayette*	16.0	17.0	6.0	12.0
Lake Charles*	16.0	17.0	6.0	12.0
Shreveport	15.0	16.0	5.0	12.0
Knoxville, Tenn.	18.5	19.5	6.0	13.5
Memphis	16.5	17.5	6.0	10.0
Chattanooga	18.5	18.5	6.0	12.0
Nashville	15.5	15.5	6.0	12.5
Bristol	17.5	18.5	6.0	14.0
Lt. Rock, Ark.	16.0	17.0	6.0	11.0

*Includes city tax of 1 cent. Louisiana kerosene prices include 1-cent state tax. New Orleans kerosene price also includes 1-cent city tax.

†Gasoline price at Alexandria includes 1-cent tax in parish of Rapides.

Two-cent discount off gasoline and kerosene tank wagon price to dealer and commercial accounts.

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atl'tic City, N.J.	14 7	15.7	3.0	10.5
Newark	13.7	14.7	3.0	9.5
Annapolis, Md.	15.2	16.2	4.0	10.0
Baltimore	14.4	15.4	4.0	8.5
Cumberland	16.2	17.2	4.0	11.0
Wash'ton, D. C.	12.9	13.9	2.0	9.7
Danville, Va.	17.0	18.0	6.0	10.3
Norfolk	15.5	16.5	5.0	9.0
Petersburg	16 5	17.5	5.0	10.3
Richmond	15.9	16.9	5.0	9.7
Roanoke	17.2	18.2	5.0	11.0
Charles'n, W.Va.	15.7	16.7	4.0	10.5
Keyser	16.3	17.3	4.0	11.1
Parkersburg	14.4	15 4	4 0	9.2
Wheeling	15 6	16 6	4.0	10.4
Charlotte, N. C.	18.5	19.6	6 8	11.3
Hickory	18 8	19.8	6.0	11.6
Mount Airy	18 7	19 7	6.0	11.5
Raleigh	18 4	19 4	6.0	11.2
Salisbury	18.7	19 7	6 0	11.5
Charleston, S.C.	16.5	17.5	6.0	9.2
Columbia	18.4	19.4	6 0	11.2
Spartanburg	18 7	19.7	6 0	11.5

Two cents per gallon discount off retail tank wagon price of gasoline to dealers except Washington, D. C., and states of Maryland and New Jersey, where discount is 3 cents.

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Albany, N. Y.	16.6	17.6	3.0	15.6
New York*	15.3	15.3	3.0	14.3
Buffalo	15.8	15.8	3.0	14.8
Rochester	16.0	16.0	3.0	14.0
Syracuse	16.8	16.8	3.0	14.8
Boston, Mass.	16.5	16.5	3.0	13.5
Augusta, Me.	18.8	18.8	4.0	14.8
Manch'tr, N. H.	18.4	18.4	4.0	14.0
Burlington, Vt.	19.3	19.3	4.0	15.3

*Prices in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Ohio points	15.0	16.0	4.0	*13.0

Dealers and commercial accounts 2 cents under tank wagon.

*Service station price 13.0 cents.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline			Kero.
	Tank wagon	Service station	Incl'ds tax	tank wagon
Atlanta, Ga.	16 0	16.0	6.0	12.5
Augusta	19.0	20.0	6.0	14.0
Macon	16.0	16.0	6.0	12.0
Savannah	18.0	18.0	6.0	12.0
Birm'ham, Ala.	15.0	15.0	6.0	13.0
Mobile	18.5	18.5	5.0	10.0
Montgomery	17.0	17.0	5.0	13.5
Clarks'le, Miss.	18.0	20.0	5.0	13.5
Jackson	16.0	16.0	5.0	11.5
Natchez	18.0	20.0	5.0	13.5
Gulfport	16.0	16.0	5.0	13.5
Vicksburg	14.0	14.0	5.0	11.5
Jack'ville, Fla.	15.0	15.0	7.0	13.0
Miami	19.0	21.0	7.0	13.0
Pensacola	19.0	20.0	7.0	13.0
Tampa	18.0	19.0	7.0	12.0
Lexington, Ky.	17.0	18.0	5.0	12.0
Covington	16.0	17.0	5.0	11.0
Louisville	16.0	17.0	5.0	10.0
Ashland	17.0	19.0	5.0	13.0
Paducah	16.0	17.0	5.0	11.0
Bowling Green	19.0	21.0	5.0	14.5
Corbin	18.0	19.0	5.0	15.0

A third grade "Kyso Green," is sold at a price generally 2 cents below the price on the regular grade.

In addition to the state tax of 4 cents on gasoline, Montgomery has city tax of 1 cent on gasoline and one-half cent on kerosene. Kerosene prices in Georgia include 1-cent tax. In Florida, an inspection fee of 0.125 cent; in Alabama, an inspection fee of one-half cent on kerosene and one-fourth cent on gasoline. To Pensacola, Montgomery, Birmingham and Mobile state taxes add 1-cent levy tax. To Gulfport state tax add privilege tax of 2 cents.

Effective April 2 price to dealers 2 cents under posted tank wagon price.

NAPHTHA

	Tank wagon	Tank car
Oleum spirits	10.7	6.0
V.M.P. naphtha	12.7	7.5
Cleaners' naphtha	14.2	9.0
Stanisol	14.2	9.0

Tank wagon prices f.o.b. Chicago and Whiting, effective July 3.

STANOLIND FURNACE OIL IN CHICAGO

Effective July 1, prices f.o.b. Chicago, tank wagon prices: 1 to 99 gallons, 8 cents; 100 gallons or more 6 cents.

Stanolax Fuel

Effective May 9, f.o.b. Chicago, tank wagon prices: 1 to 199 gallons, 7 cents; 200 gallons or more, 5 cents. Sinclair met this by bringing down the price of its No. 3.

Fuel Oils

Chicago tank wagon prices (in lots of 400 gallons and over): 38-40 straw distillate, 6 cents; 32-36 gas oil (light zero), 5.5 cents; 32-36 gas oil (industrial) 5.35 cents; 28-30 zero fuel oil, 5 cents; 24-26 fuel oil, 4.25 cents; 18-22 fuel oil, 3.75 cents.

TANK WAGON CHANGES

Continental Oil Co. advanced the gasoline tank wagon and station prices 1 cent in Denver to 16 and 19 cents on September 2. On September 4 these prices were advanced 1 cent in Utah and Idaho with the exception of Twin Falls, Idaho.

Atlantic Refining Co. posted varying

(Continued on Page 104)

CRUDE OIL PRICE CHANGES

On September 4 the Seep Purchasing Agency posted an increase of 5 cents on Southeastern Ohio oil run through Buckeye Pipe Line lines and a 5-cent increase on Corning, Ohio, oil.

A belated report announces that effective August 24 the Imperial Oil Limited and the Regal Oil & Refining Co. will pay the following prices in Alberta, Canada: Turner Valley crude oil, 45 to 49.9 degrees, $2.08; crude oil 50 degrees and

(Continued on Page 104)

CRUDE OIL PRICES

(Continued from Page 93)

Thrall‖	
Lytton Springs (Lockhart). See gravity table	
Dobrowolski‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°	
Somerset‖	
Same as Mid-Continent gravity scale up to and including 38-38.9°	

*Texas, Humble and Gulf all posted on August 22. †Magnolia Petroleum Co. ‖Thrall prices same as North Central Texas less 19½ cents per cwt. freight. ¶Grayburg Oil & Refining Co., Pioneer Oil & Refining Co. and Texas Petroleum Products. ‖Pioneer Oil & Refining Co.

ROCKY MOUNTAIN STATES

Ohio Oil Co.-Midwest Refining Co.

Iles, light (Aug. 24, 1931)	$ .75
Iles, heavy (Aug. 24, 1931)	.53
Fort Collins (Aug. 24, 1931)	.61
Florence (Aug. 24, 1931)	.50
Wellington (Aug. 24, 1931)	.51
Dutton Creek (Aug. 24, 1931)	.60
Rock Creek, Wyo. (Aug. 24, 1931)	.70
Frannie, light (Aug. 24, 1931)	.53
Frannie, heavy (Aug. 24, 1931)	.43
Salt Creek.....Mid-Continent gravity table	
Big Muddy (Aug. 24, 1931)	.68
Grass Creek (Aug. 24, 1931)	.90
Elk Basin (Aug. 24, 1931)	.90
Lance Creek (Aug. 24, 1931)	1.05
Poison Spider (Mar. 5, 1931)	.70
Notches (Mar. 14, 1927)	.85
Hudson (June 2, 1931)	.85
Lander (Mar. 5, 1931)	.40
Rex Lake (Feb. 22, 1930)	1.10
Osage (Apr. 15, 1931)	.92
Lost Soldier (Aug. 25, 1931)	.54
Hamilton Dome (Mar. 14, 1927)	.85
Greybull (Aug. 24, 1931)	.90
Torchlight (Aug. 24, 1931)	.90
Cat Creek (Aug. 24, 1931)	.90
Pondera (Aug. 24, 1931)	.80
Sunburst, Mont. (Aug. 24, 1931)	.90
Hogback, N. Mex. (Aug. 24, 1931)	.80
Lea County, N. Mex. (Aug. 24, 1931)	.85
Border, Mont.	1.55
Red Coulee, Alberta	1.55
Dry Creek, Mont. (Aug. 24, 1931)	1.00
Maljamar (Aug. 22, 1931)	1.00
Artesia-Jackson (Aug. 22, 1931)	.85

Note—Salt Creek, Cat Creek, Dry Creek, Dallas-Derby, Hudson, Greybull and Hogback posted by Midwest Refining Co. and remainder by Ohio Oil Co. Both companies posted Grass Creek light and Elk Basin. Lost Soldier posted by Producers & Refiners Corp. Artesia, Jackson and Maljamar posted by Continental Oil Co. Border and Red Coulee posted by Imperial Refining Co. Ohio Oil Co. ceased posting Artesia on March 5, 1931. Lea County posted by Humble Oil & Refining Co. Fort Collins, Wellington, Orchard, Florence, Rattlesnake and Table Mesa by the Continental Oil Co. Osage posted by Arro Oil & Refining Co.

MIDDLE WESTERN STATES

Ohio Oil Co.

(Effective August 24, 1931)

Lima	$ .98
Wooster	1.00
Illinois	.50
Indiana	.50
Princeton	.80
Plymouth	Shut in
Western Kentucky	.75
Midland, Mich.*	.73
Dundee, Mich.†	
Same as Stanolind Crude Oil Purchasing Co.'s Mid-Continent gravity scale	
Upper and Lower Traverse Sands, Mich.†	
.....Same as Mid-Continent gravity scale	
Somerset, Ky. (Aug. 22, 1931)	.80
Hart County, Ky. (Aug. 24, 1931)‖	.75

*Posted by Pure Oil Co. †Posted by Standard of Indiana for boat shipment. ‖Posted by Stoll Refining Co. Somerset, Ky., crude purchased by Ashland Refining, Ashland, Ky., and delivered through Cumberland Pipe Line.

MEXICO

Panuco*	$ .44

*F.o.b. ship, based on July transactions and exclusive of taxes and bar dues.

CANADA

Ontario (Aug. 24, 1931):	
Petrolia*	$1.80
Oil Springs*	1.87
Alberta (Aug. 24, 1931):	
Turner Valley†:	
Crude oil 45-49.9	2.08
Crude oil 50 and above	2.65
Crude naphtha	2.12
Discolored naphtha	2.33

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Of Interest to Sales Departments

OVER 900,000 TRACTORS NOW IN UNITED STATES

The sale of tractor distillate and tractor lubricating oils has become an important item in the total outlet for refinery products and a recent survey to determine the number of units in each state may be helpful in studying individual company sales as a portion of the total. The following list of states and the number of tractors registered in each shows Illinois in the lead with Ohio second. A total of 920,734 is thus accounted for.

TOTAL NUMBER OF TRACTORS ON FARMS IN THE UNITED STATES (1931 CENSUS)

Washington	7,983
Oregon	9,550
California	52,115
Idaho	4,056
Nevada	409
Montana	10,038
Wyoming	2,727
Utah	1,499
Arizona	2,465
Colorado	10,369
New Mexico	1,993
North Dakota	27,678
South Dakota	27,920
Nebraska	36,882
Kansas	57,050
Oklahoma	30,143
Texas	32,162
Minnesota	44,289
Iowa	53,137
Missouri	20,498
Arkansas	6,527
Louisiana	5,785
Wisconsin	57,910
Illinois	78,138
Michigan	38,443
Indiana	46,316
Mississippi	3,714
Ohio	59,518
Kentucky	9,727
Tennessee	8,714
Alabama	5,172
Florida	7,184
Georgia	9,332
South Carolina	6,653
North Carolina	16,749
Virginia	9,685
West Virginia	3,740
Maryland	7,216
New Jersey	8,644
Pennsylvania	38,639
New York	50,911
Connecticut	3,115
Massachusetts	4,316
Vermont	3,277
New Hampshire	1,024
Maine	3,789
Delaware	1,315
Rhode Island	669
Total	920,734

GASOLINE IMPORT VALUES

CHATHAM, Ontario, Sept. 5.—Announcement was made this week by the department of national revenue at Ottawa that importations of refined gasoline from various points in the United States will until further notice be appraised for duty purposes at the following prices per wine gallon:

Pennsylvania, New York and district, which includes Atlantic Seaboard, 7.363 cents; Toledo, Detroit, Cleveland and district, 7.976 cents; Chicago and district, 6.876 cents; Wood River, St. Louis and district, 6.476 cents; Mid-Continent district, which includes the States of Oklahoma, Kansas, part of Missouri, part of Arkansas and North Texas, 4.726 cents; South Texas, Louisiana and district, 6.276 cents; Wyoming and district, 4.726 cents; Montana and district, 7.726 cents.

It is also provided that goods are not to be entered at less than their invoice values, nor less than the fair market value as sold for home consumption. The above prices are based on current prices of crude oil in the different fields.

GAS PUMP REGULATIONS

CHATHAM, Ontario, Sept. 5.—New regulations adopted by the New Brunswick provincial government prohibit the erection of gasoline pumps on highways outside incorporated towns and villages without a permit from a highway engineer.

ENGLAND CONSUMES MORE RUSSIAN OIL

NEW YORK, Sept. 7.—Imports of Russian petroleum into Great Britain during the first six months of 1931 totaled 141,913,000 gallons, as compared with 135,069,000 gallons in the corresponding months of 1930, according to figures compiled from official figures by the London Petroleum Times.

Commenting on the steady expansion of Russian oil marketing operations in England, the Times says. "The importation of 135,069,000 gallons during the first half of 1930 represented an increase of 38,468,000 gallons, or 39.8 per cent, over the corresponding period of 1929; this year, for the half year the total Russian oil imports have been approximately 141,913,000 gallons, an increase of 6,844,000 gallons, or 5 per cent, over the corresponding figures for last year. It is possible that the above total may be about 1,000,000 gallons (all motor spirit) too low, owing to the recent opening of the oil distributing depot of Cork Oil Wharves, Ltd., at Haulbowline Island, Cork. Here Russian cargoes are being received and distributed in smaller quantities to English ports, but the port of consignment is shown in the customs returns as Cork, and not the original one of Russia.

"The following table shows the respective quantities of Russian oil imports during the period under review, and also the proportions of the United Kingdom total imports as based on the Board of Trade half yearly returns:

	Jan.-June, '31 Gallons	% of U.K. trade	Jan.-June, '30 Gallons	% of U.K. trade
Motor spirit	72,135,000	15.2	61,010,000	11.6
Kerosene	37,753,000	27.3	33,197,000	30.4
Gas oil	1,827,000	4.9	8,075,000	13.1
Lub oil	5,966,000	13.5	8,442,000	15.2
Fuel oil	24,232,000	9.8	24,345,000	11.8

"Thus," the Times concludes, "it would appear from these preliminary statistics that Russia has increased her participation in the motor spirit trade of the British market, but has not maintained here sales in other products in proportion to the increasing requirements of the country."

ENGLAND MAY ADOPT DIESELS

NEW YORK, Sept. 5.—British government officials, who have been considering a plan for the electrification of British railways, now have under consideration an alternative plan, providing for the introduction of Diesel-electric power.

According to reports from London, the plan for electrification of British railways will involve an expenditure of £340,000,000, while the introduction of the Diesel-electric system can be accomplished at an outlay of £150,000,000.

Fuel for Diesel-electric locomotives, sponsors of that plan point out, can be derived from either imported oil, or through the hydrogenation of British coal.

LIMIT SOVIET DELIVERIES

NEW YORK, Sept. 5.—The Persian government has published a decree limiting the imports of Russian refined products, this action being taken to protect the royalties derived by the government from the Anglo-Persian Oil Co., Ltd., and to curtail Soviet manipulations in Persian exchange.

Soviet marketers have been substantially extending their sales activities in Persia during the past few years. Because of the geographical location of Russian refineries, the Soviet has enjoyed a freight advantage over Anglo-Persian in the Persian market.

SOME TRACTORS REQUIRE LARGE AMOUNT OF FUEL

As the various states begin to investigate the seriousness of the question of gasoline tax evasion some interesting inconsistencies are brought to light. The Nioma, the bulletin of the Nebraska petroleum marketers, cites a typical example.

"The Kansas jobber is allowed to deduct forthwith the gallons shown by the statements and remit 3-cent tax to Topeka for the balance of the gasoline imported. The report of Seth G. Wells, state oil inspector for Kansas, is very interesting from the point of view that it confirms every argument which was used by the opponents of gas tax exemptions in the legislature in Nebraska. The tractor and combines in Kansas are veritable hogs for gasoline. They used in June 14,825,176 gallons of gasoline out of a total of 26,829,750 gallons used for all purposes.

"In other words, in June the Kansas inspector's reports show that $804,892.78 was the total amount of tax and the exemptions were $444,755.28. In other words, the 96,175 tractors and combines in Kansas, plus some cleaning establishments and other concerns, averaged about 150 gallons of gasoline during the month. In one county, the average was 1,200 gallons of gasoline per machine, in another county nearly 500 gallons per machine, and in another 450 gallons per machine.

"The Kansas law is a very good law for two parties. The first, for the farmer who uses gasoline only for agricultural purposes, and second, for the oil jobber who does not have to carry the farmer on his books for the amount of the gasoline tax."

NAVY GASOLINE BIDS

WASHINGTON, D. C., Sept. 7.—Bids on nearly 1,900,000 gallons of motor gasoline to be delivered along the East Coast and Gulf Coast ports are being invited by the U. S. Navy Department and will be opened in this city September 18. This gasoline is to be delivered to points in the following states during the period from November 1, 1931, to April 30, 1932: Alabama, 2,600 gallons; Connecticut, 33,000 gallons; District of Columbia, 16,000 gallons; Florida, 365,500 gallons; Illinois, 80,000 gallons; Louisiana, 12,500 gallons; Maine, 28,500 gallons; Maryland, 27,000 gallons; Massachusetts, 314,500 gallons; Michigan, 27,500 gallons; Mississippi, 130,000 gallons; New Jersey, 262,400 gallons; New York, 152,500 gallons; North Carolina, 58,000 gallons; Ohio, 35,000 gallons; Pennsylvania, 5,500 gallons; Rhode Island, 17,000 gallons; South Carolina, 133,000 gallons; Texas, 100,000 gallons; Virginia, 69,000 gallons; and West Virginia, 5,000 gallons.—C. E. K.

PHILLIPS MOVES OFFICES

CHICAGO, Sept. 7.—General sales offices of Phillips Petroleum Co. in Chicago will be moved from the Strauss Building, 310 South Michigan, to a new location at Archer and Western Avenues before October 1, it was announced at these offices today. R. N. Mullin, division manager, will continue to have an office at the present address as well as at the new location. The tank car sales office of the company, under E. M. Kelly, will remain at 310 South Michigan. The offices at Archer and Western Avenues are in a recently remodeled building formerly owned by the United States Industrial Alcohol Corp. Thirty-eight employes will be moved to this building.

AIR CORPS HAS WATER-GASOLINE SEGREGATOR

The Air Corps of the Department of War has officially adopted a "segregator" for the removal of water and dirt from gasoline. According to the "Air Corps News Letter," the new invention has reduced engine trouble and forced landings caused by fuel difficulties. The segregator was developed by Sergt. Davis Samiran.

Separation of the two liquids is facilitated by the special design of the interior of the fluid chamber which directs the liquid flow so that the water is delivered to the bottom with a minimum of turbulence, while the gasoline is drawn off through an outlet at the top after passing through an efficient sediment screen. The accumulated water is discharged automatically by the operation of a simple float-valve mechanism. Only one moving part is employed in the device so that the resulting simplicity permits interchangeability of many parts of the various models.

There is no practical limitation to the size of the invention, the inventor believes. One model has been constructed which can be "readily placed in the pocket" while models having an hourly capacity of thousands of gallons are contemplated.

The universal custom of filtering gasoline through chamois strainers placed in a fueling funnel formerly was considered effective, but tediously slow and often developed static electricity which led to explosions when the funnel was not properly grounded.

Experimental work with the new separator was conducted in Panama where one squadron for four months used gasoline strained through the invention. "Several thousand gallons of gasoline were pumped through the segregator, some of which contained a rather high percentage of water," an official report explains, "and it was found to function satisfactorily at all times. Other squadrons using the same kind of gasoline but not the fluid isolator were having frequent engine trouble."

A report from one field in California said that "practically no sediment" has been found in strainers of drain cocks since the invention was put in use and that there has been no trouble due to water in the fuel systems.

ARGENTINE ASKS HIGHER DUTY

NEW YORK, Sept. 5.—The National Bureau of Petroleum Production has recommended to the Argentine government a substantial increase in the import tariff on crude oil and principal refined products, the added protection being sought for the stimulation of the domestic industry.

With the Argentine refining industry reputedly sufficiently large to take care of all domestic requirements, companies active in that country are seeking a prohibitive duty on most products.

No indication has been forthcoming as yet as to the government's attitude on the question of higher duties, although only a short time ago import duties on crude were reduced by the government, on the ground that domestic production was not sufficient for the country's needs.

SOVIET STARTS CRACKING UNITS

NEW YORK, Sept. 5.—The Soviet oil trust has placed the first section of the Winkler-Koch cracking installation at Baku in operation. The installation has a daily capacity of 500 tons of mazut or 160 tons of gasoline, and is operated entirely by Soviet specialists.

Spreading Corporation Ownership

Standard of Indiana Statement of Stockholders an Example. Semiannual and Quarterly Reports of Various Oil Companies

Figures illustrating the way in which ownership of great American corporations is passing from the hands of the few into the hands of the many were released by the Standard Oil Co. of Indiana.

When this company became a separate organization in 1911 it had 6,078 stockholders, nearly all of whom were residents of New York and a few other financial centers. Now it is owned by 95,136 stockholders scattered through every state and territory in the United States and several foreign countries.

The largest amount of stock held by any one stockholder is only 4.07 per cent of the total and the average of 179 shares per stockholder only .001 per cent of the total.

The number of stockholders by states is as follows: Alabama 126, Arizona 87, Arkansas 65, California 2,690, Colorado 1,463, Connecticut 1,083, Delaware 99, District of Columbia 611, Florida 432, Georgia 136, Idaho 45, Illinois 19,059, Indiana 10,834, Iowa 3,306, Kansas 1,143, Kentucky 1,779, Louisiana 270, Maine 343, Maryland 657, Massachusetts 2,373, Michigan 3,948, Minnesota 2,699, Mississippi 79, Missouri 3,545, Montana 179, Nebraska 517, Nevada 18, New Hampshire 427, New Jersey 2,201, New Mexico 82, New York 11,611, North Carolina 213, North Dakota 562, Ohio 4,186, Oklahoma 580, Oregon 155, Pennsylvania 7,264, Rhode Island 399, South Carolina 58, South Dakota 583, Tennessee 317, Texas 535, Utah 97, Vermont 141, Virginia 314, Washington 260, West Virginia 674, Wisconsin 3,570, Wyoming 1,916, territories 75, foreign countries 1,330.

Some 52,807 of the stockholders, or 55 per cent of the total, reside in the 13 north central states in which the company carries out its main manufacturing and marketing operations. Although the stock is of the type particularly popular with investors in the financial capitals of the East, and although many eastern investors recently came into the Standard of Indiana group in connection with the exchange of shares of Pan American Petroleum & Transport Co. stock, there are nearly 8,000 more stockholders in Illinois than in New York.

The figures cited do not give effect to the further distribution of interest in Standard of Indiana stock through the investment companies. Many of these latter carry the stock as one of their principal holdings; so that their stockholders to a very considerable number have indirect interest in this $500,000,000 oil corporation. Considering this feature, it is estimated that the number of persons having a financial interest in Standard of Indiana is well over 100,000.

Rio Grande Oil

Rio Grande Oil Co. reports for six months ended June 30, 1931, net loss of $1,997,892 after taxes, depreciation, depletion, amortization, inventory adjustments, etc. This compares with net profit of $2,232,303 equal to $1.80 a share on 1,236,270 no-par shares of capital stock in first half of 1930.

For quarter ended June 30, 1931, net loss was $2,058,583 after all charges. This compares with net profit of $60,691 equal to 5 cents a share on 1,236,270 shares of stock in preceding quarter and net profit of $1,028,038, or 83 cents a share in June quarter of 1930. A deduction of $880,692 has been taken from 1931 figures for adjustment of inventories.

Commenting on the earnings statement, C. S. Jones, vice president, said:

"It has been the company's policy in the past to make inventory adjustments that were necessary, at the end of each calendar year. In the publication of this statement, the policy has been changed and inventory adjustments and abandonments at June 30, last, have all been provided for and the inventory values carried at June 30, are lower than the market at that date.

"The California oil industry during the first six months of 1931 passed through the most demoralized and chaotic era of its history. Since the end of June considerable betterment has taken place, and while it is too early to be certain, it seems that a stabilized basis of operations is rapidly being approached."

The company operated at a profit during July with production curtailed to 25 per cent of the 1930-1929 average daily output.

Colonial Beacon Oil

Colonial Beacon Oil Co. (controlled by Standard Oil Co. of New Jersey) reports for six months ended June 30, 1931, net loss of $1,864,020 after interest, depreciation, inventory adjustments, etc., comparing with net loss of $1,316,164 in first half of 1930.

For quarter ended June 30, 1931, net loss was $859,009 after above charges comparing with net loss of $1,005,011 in preceding quarter and net loss of $459,303 in June quarter of previous year.

Southwest Gas Utilities

Southwest Gas Utilities Corp. omitted the quarterly dividend of $1.62½ on the $6.50 cumulative preferred stock, due at this time.

Although the dividend was earned, Charles G. Laskey, president, reported to stockholders that the board felt it necessary to conserve the company's cash position until some of its present problems were settled and business conditions gave prospects of a return to normal. He added that the management had been successful in effecting substantial economies in operating and administration costs, as well as in the costs of gas purchased.

Union Natural Gas

Union Natural Gas Co. of Canada has declared a dividend of 25 cents, payable September 10 to stock of record August 20. Similar payment was made three months ago.

Warner-Quinlan

Warner-Quinlan Co. reports for six months ended June 30, 1931, consolidated net loss of $95,842 after interest, depreciation, depletion, taxes, inventory adjustment and including proportion of profit or loss of affiliated companies and a non-operating profit of $139,325. This compares with a net loss in first half of 1930 of $167,361 after taxes and charges.

For quarter ended June 30, 1931, consolidated net loss was $74,926 after interest, depreciation, depletion, taxes, inventory adjustment and including proportion of profit or loss of affiliated companies and a non-operating profit of $11,013. In preceding quarter net loss was $20,916 after taxes and charges and including a nonoperating profit of $128,312. In the June quarter of 1930, company reported a net profit of $143,195 after taxes and charges, equal to 20 cents a share on 717,341 average number of no-par shares of common stock outstanding during that quarter.

Standard of New Jersey

Standard Oil Co. of New Jersey plans to place in effect the beginning of next year modifications in its employes' annuities and insurance provisions which will reduce the company's outlays for these purposes. The company had reserve for annuities at the end of last year of $53,825,598 and insurance reserve of $22,672,365.

Standard Oil Co. of New Jersey declared the usual extra dividend of 25 cents and the regular quarterly dividend of 25 cents, both payable September 15 to stock of record August 17.

Amerada Corp.

Amerada Corp. and subsidiaries report for quarter ended June 30, 1931, net loss of $536,450 after taxes, depreciation, depletion, abandoned leases, drilling expenses, etc. This compares with net profit of $58,225 equal to 6 cents a share on 992,075 no-par shares of capital stock in the preceding quarter, and net profit of $477,645 or 52 cents a share in June quarter of 1930.

Net loss for six months ended June 30, 1931, was $478,625 after taxes, charges, etc., comparing with net profit of $401,060 in first six months of previous year, equal to 43 cents a share on the 992,175 no-par shares of stock.

Skelly Oil

Skelly Oil Co. and subsidiaries report for quarter ended June 30, 1931, net loss of $1,926,538 after taxes, interest, depreciation, depletion and inventory adjustments, comparing with net loss of $776,345 in preceding quarter and net profit of $736,274, equal after dividends paid on 6 per cent preferred stock, to 59 cents a share (par $25) on 1,099,659 shares of common stock in June quarter of previous year.

Net loss for six months ended June 30, 1931, amounted to $2,702,883 after above charges against net profit of $1,283,784, equal to $1.09 a share on common in first half of 1930.

Panhandle P. & R.

Panhandle Producing & Refining Co. and subsidiaries report for quarter ended June 30, 1931, net loss of $168,121 after taxes, depreciation, depletion, amortization, intangible drilling costs, inventory adjustments, interest and minority interest. This compares with net loss of $126,557 in preceding quarter and net loss of $73,768 in June quarter of previous year.

For six months ended June 30, 1931, net loss was $294,678 after taxes and charges, against net loss of $36,542 in first half of 1930.

Pacific Western Oil

Pacific Western Oil Corp and wholly owned subsidiaries report for six months ended June 30, 1931, net loss of $688,521 after taxes, depreciation, depletion, etc. This compares with net profit in

(Continued on Page 104)

STANDARD OIL STOCKS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending August 29)

1931 High	1931 Low	Week ended Aug. 29 Sales	Week ended Aug. 29 High	Week ended Aug. 29 Low	Close Sept. 2	Stocks—	Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1	⅛	No sales.	..	..	..	Atlantic Lobos	499,448	N.P.	....	5-28-30	..	..	..	..	1	⅛
16	6¼	50	13	13	..	Borne Scrymser	$1,000,000	$25	....	10-15-30	56½	44½	46½	25	25	11¼
51	41	No sales.	..	..	..	Buckeye Pipe Line	$10,000,000	$50	$1Q	6-15-31	76	53	74½	55	69	39⅞
129½	101	No sales.	..	..	..	Chesebrough Mfg.	$3,000,000	$25	$1Q‡	6-30-31	161	117	210	130	184⅞	104¼
3⅞	2	2,600	2¾	2½	..	Creole Petroleum	(sh) 5,977,872	N.P.	....	.....	17½	9½	11¾	5⅝	7⅝	3
39	20⅝	1,000	38¾	29	28	Cumberland Pipe Line	$1,500,000	$50	50cQ	6-15-31	114	67	75¾	40	65¾	20¼
36	24	650	36	33	34⅛	Eureka Pipe Line	$5,000,000	$100	$1Q	5- 1-31	88	64⅛	70½	40	54¾	26
3	1	200	2⅝	2⅝	2¼	Galena Signal Oil	$16,000,000	$100	....	.....	13	4¼	6½	3	7	2½
72	49⅞	900	65	63⅝	..	Humble Oil & Refining	$74,103,300	$25	50cQ	7- 1-31	114¾	59½	128	74⅛	119	57¼
18¼	9⅞	3,700	13⅞	13	13⅜	Imperial Oil of Canada (new)	(sh) 25,421,768	N.P.	12½cQ	6- 1-31	104	56¾	41	22	30	15
21⅛	9⅛	200	12¼	12	..	Indiana Pipe Line (new)	$3,000,000	$10	25cQ	5-16-31	91⅞	74⅜	41⅞	26	41	14½
15½	8¾	7,500	13	12⅜	..	International Petroleum (new)	(sh) 14,247,088	N.P.	25cQ	6-15-31	55	35	30⅜	15	24	11⅜
17½	11¼	100	13	13	..	National Transit	$6,362,500	$12.50	25cQ	6-15-31	32⅜	19⅜	25⅛	10⅛	22⅜	11½
14½	7½	300	9¼	9	..	New York Transit	$1,000,000	$10	25cQ	7-15-31	75	38½	17½	10	21⅜	10⅛
34¼	25	750	34¼	32½	..	Northern Pipe Line	$2,000,000	$50	$2SA	7- 1-31	69	56½	63	41	54	26¼
15½	8	100	11¾	11¾	..	Penn Mex Fuel	$10,000,000	$25	75c	6-24-31	84	28	44½	20	32	12
16½	3¼	3,000	16½	16¼	16	Solar Refining	$4,000,000	$25	....	12-20-29	..	..	50	29	33	4⅞
23⅞	12⅜	1,600	19⅞	18	17½	South Penn Oil	$30,000,000	$25	25cQ	6-30-31	71⅞	36¾	60¼	35⅛	45⅞	16⅛
17	10	300	13¾	13½	13¾	Southern Pipe Line	$1,000,000	$10	50c	6- 1-31	19	15	22½	13	20⅞	8⅝
41	31¼	300	41	41	..	Southwest Pennsylvania Pipe Line	$1,750,000	$50	$1Q	7- 1-31	102	70	70	60	64	32
38½	19¼	13,500	27¼	26	25⅝	Standard Oil of Indiana	$348,175,069	$25	50cQ	6-15-31	95⅞	70⅞	63	45	59⅞	30
23⅞	15⅝	6,300	21⅝	19¾	20¼	Standard Oil of Kentucky	$25,654,516	$10	40cQ	6-30-31	179¾	122¼	46⅞	29	40½	18⅝
36½	19¼	400	29	28½	..	Standard Oil of Nebraska	$4,649,225	$25	50cQ	6-20-31	54⅞	39⅞	50¼	40	48⅞	34⅝
62½	35	1,000	56	51½	50½	Standard Oil of Ohio	$14,000,000	$25	62½cQ	7- 1-31	134	71	129	60	108½	43¼
3½	2¾	No sales.	..	..	..	Swan-Finch Co.	$861,466	$25	....	1-15-29	23¼	16	18	10	10	4

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus 50 cents extra.

INDEPENDENT OILS ON NEW YORK CURB

Quotations Compiled by Francis, Bro. & Co., Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending August 29)

1931 High	1931 Low	Week ended Aug. 29 Sales	Week ended Aug. 29 High	Week ended Aug. 29 Low	Close Sept. 2	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
1¾	½	2,300	⅝	½	..	American Maracaibo	(sh)	700,000	N.P.	....	.....	9½	3⅛	8⅝	1⅛	4½	½
16⅞	8¼	No sales	..	..	..	British American Oil Corp.		1,311,321	N.P.	20cQ	7- 2-31	55	32¾	62	7⅞	23	13⅜
2⅜	½	No sales	..	..	¾	Carib Syndicate		$131,250	25c	....	.....	4½	3⅞	4⅞	1	2¾	⅝
20¾	8⅝	49,000	10¾	10¼	10¼	Cities Service	(sh)	24,290,359	N.P.	30cA‡	7- 1-31	90⅞	54	68⅛	20	44¼	13
84¾	61¼	800	63½	62¾	63½	Cities Service pfd.	(sh)	1,500,000	N.P.	50cM	7- 1-31	103¼	94½	98¾	84	93⅞	78¼
½	⅛	1,400	3/16	⅛	..	Colombia Syndicate		$2,000,000	$1	....	.....	3¼	.76	2	½	¾	⅛
2¾	1½	No sales.	..	..	..	Consolidated Royal		$5,527,875	$10	7½cQ	4-25-31	8⅞	6¼	11⅛	2½	5⅞	2
⅝	¼	No sales.	..	..	..	Crown Central		.....	....	....	.....	..	..	..	..	..	..
5	2	100	3¾	3¾	..	Darby Petroleum (new)		1,019,392	N.P.	....	10-15-30	33½	3¼	26	6½	21¾	4¼
6	2½	2,500	4⅜	3⅜	..	Derby Oil & Refining	(sh)	500,000	N.P.	....	.....	2¼	1	11	2	11	2
40⅛	26	No sales.	..	..	..	Derby Oil & Refining pfd.		48,500	N.P.	....	.....	21⅛	7½	44	20¾	60	30
75½	38	2,100	65¾	64	59½	Gulf Oil Corp.	(sh)	4,504,921	$25	37½cQ	7- 1-31	165	101⅛	209	115	166⅞	58½
⅝	¼	11,100	1/16	¼	..	Intercontinental Petroleum		$5,682,000	$5	....	.....	3⅜	1	2⅞	⅜	1¾	⅜
1⅞	½	No sales	..	..	1/16	Kirby Petroleum	(sh)*	750,000	N.P.	....	.....	3	1¼	3⅝	1¼	3	⅞
1½	½	2,300	1	⅞	..	Leonard Oil & Development		$50,000,000	$25	....	.....	9⅜	5⅛	6⅛	1	4¾	½
6¾	3½	No sales	..	..	5⅛	Lion Oil & Refining	(sh)	250,000	N.P.	....	10-27-30	43⅞	20	38⅞	18	29	4⅞
25	14⅛	1,000	15⅝	15½	15⅝	Lone Star Gas	(sh)	5,000,000	N.P.	22cQ	6-30-31	69⅛	48½	67⅞	28	55⅞	19⅝
½	⅛	9,500	3/16	¼	1/16	Magdalena Syndicate	(sh)	850,000	$1	....	.....	1⅞	½	1¼	½	½	⅛
5	3	300	4⅛	4	..	Margay Oil Corp.		160,000	N.P.	....	7-10-30	48½	32	38½	14	16	3
4⅞	1½	100	3¾	3¾	..	Mexico-Ohio Oil Co.		500,000	N.P.	....	.....	8	2¾	6⅜	2¼	7½	1¾
½	¼	No sales	..	..	..	Mountain & Gulf		$4,000,000	$1	....	4-15-31	1¾	.76	1½	½	¾	⅜
5⅞	3⅛	900	5¼	4⅝	..	Mountain Producers		$1,682,182	$10	25cQ	7- 1-31	28⅞	19½	22⅞	7	12⅛	3¾
1½	½	200	⅞	¾	..	New Bradford Oil		$1,095,291	$5	....	4-15-31	5⅝	4¼	5	2½	3½	1⅛
3	1¼	No sales.	..	..	..	New Mexico and Arizona		$1,000,000	$1	....	.....	11⅞	7⅛	9⅜	2¼	7¼	1½
3¼	1⅛	No sales.	..	..	..	North Central Texas	(sh)	400,000	N.P.	....	9- 2-30	14¼	8½	18½	6⅛	11¼	2⅛
½	⅛	1,800	3/16	⅛	⅛	Pandem	(sh)	489,875	N.P.	....	.....	6	2⅛	3½	½	2½	¼
2	⅜	500	½	½	½	Pantapec Oil	(sh)	1,506,000	N.P.	....	.....	15⅝	8½	10½	1⅞	4⅜	⅞
3⅛	½	19,800	3⅛	1¾	1⅝	Reiter-Foster	(sh)	388,584	N.P.	....	12- 2-29	12⅞	4⅛	8½	1⅛	5⅜	1
3	1¼	200	2	2	2	Ryan Consolidated	(sh)	500,000	N.P.	....	.....	12	4⅛	11	2	8⅝	2
1⅜	½	No sales.	..	..	..	Salt Creek Consolidated	(sh)	1,286,300	$10	....	4- 1-31	7¼	5½	5⅞	1⅞	2½	½
7¾	4	900	6	5⅝	..	Salt Creek Producers	(sh)	1,496,859	$10	35cQ	5- 1-31	35	23⅛	25⅞	9	15¼	5¼
5¼	1	3,100	1½	1¼	1⅜	Sunray Oil	(sh)	1,163,185	$5	5%Q§	4-15-31	..	..	12	5⅝	10	2
1⅞	⅝	100	⅞	⅞	..	Venezuelan Petroleum	(sh)	755,090	$5	....	2-15-30	9⅛	4⅜	6½	1¾	4½	⅜
3½	1½	100	2¾	2¾	..	Woodley Petroleum		$500,000	$1	....	3-31-29	8¼	4⅞	9½	2	5	½
2¼	¼	2,800	1⅝	¾	..	Y Oil & Gas		100,000	N.P.	....	.....	8⅜	2⅛	2⅞	½	2½	⅜

*Ex-dividend. †Unit of trading less than 100 shares. ‡Payable monthly and monthly stock dividend of one-half per cent. §Paid in lieu of regular cash dividend ot 2 per cent.

TRANSACTIONS IN OIL SHARES ON NEW YORK STOCK EXCHANGE

Quotations Compiled by Francis, Bro. & Co., Members of the New York Stock Exchange and Associate Members of New York Curb, Kennedy Building, Tulsa, Okla.

(Complete record week ending August 29)

1931 High	1931 Low	Week ended Aug. 29 Sales	Week ended Aug. 29 High	Week ended Aug. 29 Low	Close Sept. 2	Stocks—		Outstanding capital	Par value	Div. rate	Last paid	1928 High	1928 Low	1929 High	1929 Low	1930 High	1930 Low
23	15½	800	19⅛	18	18	Amerada Corp.	(sh)	922,075	N.P.	50cQ	4-30-31	43⅞	27⅛	42⅝	17½	31½	16½
12⅜	5	300	7⅛	6⅞	6⅞	American Republics Corp.	(sh)	209,180	N.P.	....	12-31-30	85	51⅛	64⅜	12½	37	5⅛
31	20	No sales.	..	..	..	Associated Oil		$57,260,300	$25	35c	6-30-31	53⅜	37½	47¼	34½	51	30
23⅝	11⅛	11,500	17¼	16¼	16	Atlantic Refining		$66,763,775	$25	25cQ	6-15-31	66⅜	50	77⅞	30	51⅜	16⅝
14½	5¾	8,700	9	8½	8⅝	Barnsdall Corp. A		$56,546,600	$25	25cQ	5-11-31	54	20	49⅛	20	34	8⅝
12	5	16,700	10⅜	9⅝	9½	Continental Oil of Delaware	(sh)	4,741,554	N.P.	....	12-15-27	..	..	47⅞	18	30½	7¾
47	15¼	2,300	22½	21⅛	20	General Asphalt	(sh)	413,333	N.P.	75cQ	6-15-31	94⅞	68	94¾	42¼	71½	22⅜
68½	27	5,100	45⅞	42½	42½	Houston Oil		$24,968,600	$100	....	10-17-30	167	79	109	26	116⅞	29¼
4⅝	2	4,900	3¼	2⅞	3⅛	Indian Refining		$12,564,070	$10	....	10- 1-30	39⅝	9	53	13⅛	17	2
4½	2	100	3¼	3¼	..	Louisiana Oil Refining	(sh)	1,190,063	N.P.	....	.....	19¾	9⅜	18	7	12	3½
3¾	1	No sales.	..	..	..	Maracaibo Oil	(sh)	330,000	N.P.	....	.....	25½	12½	18½	5⅛	10⅜	1⅜
16¾	5¾	1,200	10½	10	9¾	Mid-Continent Petroleum	(sh)	1,857,912	N.P.	....	2-16-31	44½	25⅛	39⅞	22⅛	32	11
19½	7	9,400	12¾	11½	11	Ohio Oil	(sh)	6,648,052	N.P.	....	3-14-31	84	58½	79⅞	64¼	32	16
35⅛	25	No sales.	..	..	..	Pan American P. & T.		$50,084,700	$50	40c	7-20-31	50⅞	38¼	69	40½	46½	42
36½	24	100	30	30	..	Pan American P. & T. "B"		$121,110,650	$50	40c	7-20-31	59⅞	37¾	69¼	40½	67¼	30
4¼	1½	800	2½	2	..	Panhandle P. & R.	(sh)	199,370	N.P.	....	.....	21¾	11½	15¼	3	12¾	1¾
20	10	No sales.	..	..	..	Panhandle P. & R. pfd.		$2,564,400	$100	....	.....	108	70	76	47½	20	47½
16⅝	4¾	13,900	10	9⅛	9⅛	Phillips Petroleum	(sh)	2,593,075	N.P.	....	1- 2-31	53⅞	35¼	47	24¼	44⅜	11½
1½	½	1,200	¾	½	..	Pierce Oil Corp.		$29,622,831	$25	....	.....	5¼	½	3⅜	1	2½	½
3⅜	1	2,000	2⅜	2	..	Pierce Petroleum	(sh)	2,500,000	N.P.	....	2-16-31	7	3½	5⅞	½	7⅛	1⅛
20⅜	6½	2,300	12½	11⅝	..	Prairie Oil & Gas		$60,848,000	$25	....	3-31-31	68	46	65⅜	40½	54	11¼
26½	14⅝	2,000	17¼	16¾	16½	Prairie Pipe Line		$101,250,000	$25	75cQ	6-30-31	280	172	65	45	60	16⅝
6	1⅞	No sales.	..	..	..	Producers & Refiners		$37,438,950	$50	....	9-15-23	29⅞	16	25⅞	4	11⅞	1
16	6	No sales	..	..	..	Producers & Refiners pfd.		$2,845,350	$50	....	5- 4-25	49⅝	41	46¾	25½	40	11½
11⅞	5½	4,100	9⅛	7	..	Pure Oil		$75,959,250	$25	....	9- 1-30	31⅝	19	30¾	20	27⅛	7⅝
6⅜	1	400	1⅝	1½	1½	Richfield Oil (new)		$52,410,875	N.P.	....	.....	56	23	49⅝	20	9¾	4⅛
10¼	3¼	5,000	5¼	4¼	4	Rio Grande Oil	(sh)	1,236,270	N.P.	....	7-25-30	37½	32	42½	15	25¾	5
42⅝	24½	1,900	25⅞	24½	22½	Royal Dutch N. Y.	(sh)	611,303	....	$1.3404	1-30-31	64	44⅝	64	43⅛	56½	36⅞
20¾	10⅝	9,300	15¼	14¼	13⅜	Seaboard Oil of Delaware	(sh)	1,244,383	N.P.	....	10- 1-24	72	4⅝	59⅜	8¼	37	9¾
34	17½	No sales.	..	..	..	Shell Transport & Trading Co.		£23.985,000	£1	$0.966	7- 6-31	47⅞	41⅜	51½	40⅝	48⅜	26
10¼	4½	8,400	6½	6	5½	Shell Union Oil	(sh)	13,066,497	N.P.	....	6-30-30	39¼	23¼	31¾	19	25½	5¼
11	5	800	8½	8	7½	Simms Petroleum		$8,353,620	$20	....	9-15-30	27½	18⅛	40⅛	15	37	5⅝
15⅞	6¼	36,500	11⅞	10⅝	10⅝	Sinclair Consolidated	(sh)	5,500,000	N.P.	....	4-15-31	46¾	17⅜	45	21	32	9¾
103	77	1,000	102	97½	102	Sinclair Consolidated pfd.		$16,025,250	$100	$2Q	5-16-31	110	102½	111	103	112¼	86
12⅞	3⅛	1,600	7½	7¼	6⅝	Skelly Oil		$27,441,250	$25	....	12-15-30	42⅝	25	40½	28	12	10⅛
21	17⅜	38,200	20¼	19⅛	19	Socony-Vacuum	(sh)	31,923,072	$25	40cQ	9-15-31	..	..	..	..	..	..
51¾	31⅛	28,600	41⅝	39⅝	40	Standard of California	(sh)	12,594,098	N.P.	62½cQ	6-15-31	80	63	81⅞	51½	75	42½
19	8¾	300	13	12¼	12½	Standard of Kansas		$8,000,000	$25	....	3-16-31	37¾	15	33¾	18	49	14⅜
52½	30⅝	37,100	41¾	40	39⅝	Standard Oil of New Jersey		$634,999,200	$25	25cQ‡	6-15-31	59⅜	37¾	83	49	84⅞	32½
45¼	31	100	37¼	37¼	37⅛	Sun Oil	(sh)	1,416,869	N.P.	25cQ	6-15-31	77	31½	68⅜	55	70	39
1¾	⅝	1,300	1	⅞	..	Superior Oil Corp.	(sh)	766,979	N.P.	....	12-20-30	..	..	24	5¼	9⅜	¾
36¼	18	13,600	27¼	25½	26	The Texas Corporation		$246,204,900	$25	50cQ	7- 1-31	74¾	50	71⅞	50	60½	28¼
6½	2½	2,000	5	4¾	..	Texas Pacific Coal & Oil Co.		$9,304,890	$10	....	12-31-29	26⅝	12⅛	23⅞	9½	14½	4
18	10¼	No sales.	..	..	..	Tide Water Oil	(sh)	2,191,759	N.P.	15cQ	6-30-31	41½	19⅝	40	14	31	13
83	50¾	100	64	64	..	Tide Water Oil pfd.	(sh)	19,947,000	N.P.	$1.25Q	5-16-31	100⅛	86	97½	85⅛	94⅞	71
9	4	15,500	8	7¼	6¾	Tide Water Associated	(sh)	5,560,424	N.P.	30cSA	2-16-31	25	14¾	23½	10	17¾	5⅞
68	38	300	55	53	..	Tide Water Associated pfd.		$73,284,500	....	$1.50Q	7- 1-31	..	..	90⅞	74⅛	89¾	55
26⅝	14	7,200	18¾	16⅞	17¼	Union Oil of California		$104,342,375	$25	50cQ	5- 9-31	58	42⅜	57	42⅛	50	10⅛
25⅛	20	1,400	21⅛	20⅝	20½	Union Tank Car	(sh)	1,254,048	$100	40cQ	6- 1-31	128⅛	110	163¾	121⅞	38½	23
7⅜	1⅝	100	3¼	3¼	2¾	Warner-Quinlan	(sh)	632,948	N.P.	....	7- 1-30	44⅞	26	42⅞	15	27	4¼
9⅜	3½	1,000	6	5	4¾	Wilcox Oil & Gas	(sh)	428,907	N.P.	....	5-10-28	..	..	29¾	12⅞	21	6½

*Ex-dividend. †Unit of trading less than 100 shares. ‡Plus extra dividend of 25 cents.

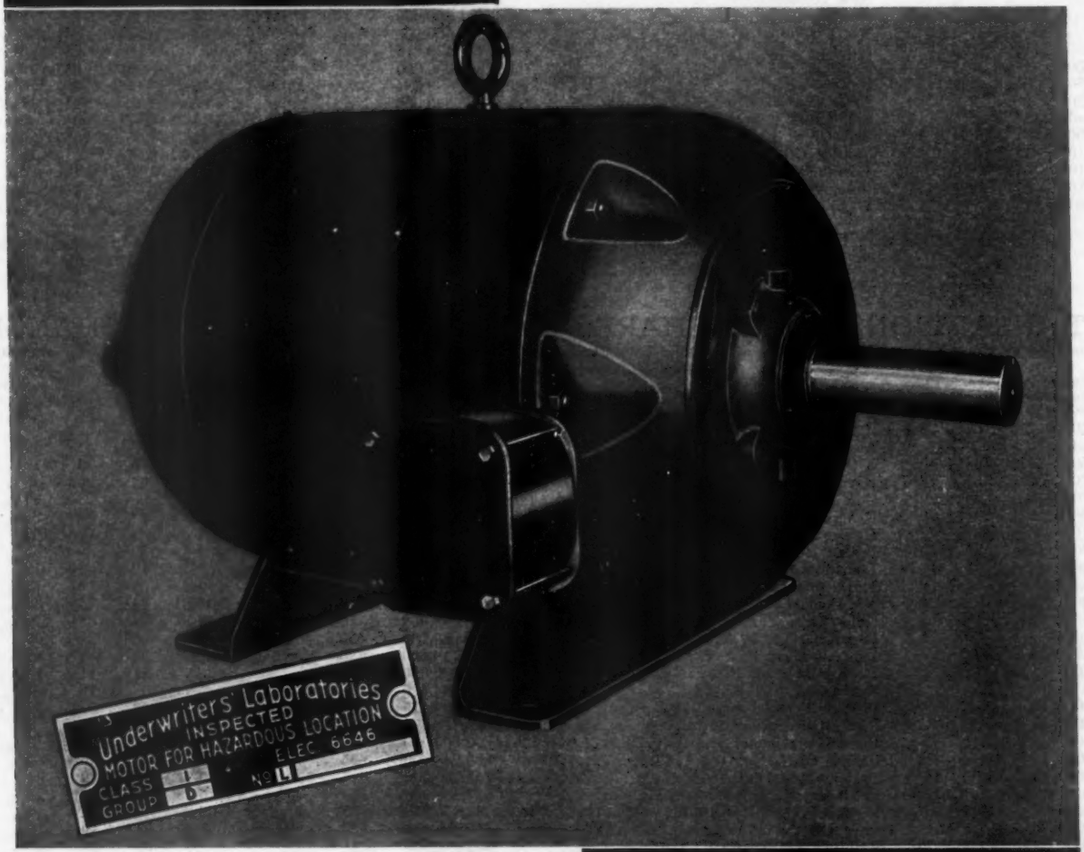
In comparing highs and lows for the several years in the three tables, it will be necessary to take into consideration cases where there have been stock split-ups.

HP Motors for Hazardous Locations

Motors which operate in locations where "flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are manufactured, used, handled or stored in other than their original containers" must be especially designed and constructed by the manufacturer as well as tested and approved by the Underwriters' Laboratories, for that service. » » » Ordinary totally-enclosed motors are not satisfactory for such installations. These locations require totally-enclosed motors having

1. Housings strong enough to successfully withstand the explosion of flammable substances inside the motor.
2. Machined fits long enough to prevent the escape of the flames (produced by such explosions) to the surrounding atmosphere.
3. Heat capacity great enough to prevent the motor (even under abnormal operating conditions) from reaching a temperature which would ignite surrounding gases.

Wagner type HP motors are built to meet these conditions and have been approved by the Underwriters' Laboratories for Class I Group D



hazardous locations where gasoline, naphtha, alcohol, benzol and other flammable liquids are manufactured, used or handled. Hence, they are ideally suited for the petroleum industry—which has already recognized the advantages of totally-enclosed motors. » » »

WAGNER ELECTRIC CORPORATION
6400 Plymouth Ave., St. Louis, Mo.

Please send copy of Bulletin 151 on totally-enclosed fan-cooled motors, page 7 of which describes Type HP motors for hazardous locations.

Name and Position .....

Company .....

Address .....

Wagner
Electric Corporation
6400 Plymouth Avenue, Saint Louis, U. S. A.
Houston - Dallas - Los Angeles - Tulsa - Pittsburgh
MOTORS TRANSFORMERS FANS
LOCKHEED HYDRAULIC BRAKES

L331-6XA

GASOLINE IS WEAKER IN CHICAGO AREA

(Continued from Page 78)

available for cracking stock are being held by the larger refiners for their own use. Figures which have been released on cracking operations in the district indicate that cracking operations have been slightly reduced.

Increase Number of Consumers

Distributors of furnace and oil heater materials are now filling their customers' tanks and replenishing their own supply. The approach of the cold season is working to firm up these markets. The oil heater business is reported to have picked up considerably the past few months under the intensive campaign carried out by most of the installation manufacturers and the oil men themselves. Some recycle gas oils are offered more freely but it is evident that the marketers are seeking to avoid anything that may depress the burning oil markets. The 32-36 industrial gas oil has advanced an eighth of a cent to 1⅛ and 1⅜ cents a gallon; the zero gas oil of this gravity made a similar advance to 1¾ and 1½ cents. The 38-40 straw distillate moved up to 1½ and 1¾ cents.

Lubricating Oils

The Pennsylvania price advances marked the cleaning up of the oversupply of bright stocks in that section, and the excess quantity which resulted in the Mid-Continent appears to have been well taken care of by a greatly increased demand for bright stocks this season. One of the largest refiners in the territory reports that it is two weeks behind in its bright stock shipments, and another large company is more than a month behind on instructions. Many of the manufacturers of bright stocks report that they are sold out for the rest of the year. Bright stock was firm in Chicago district at 16½ cents with 17 cents as the price of the zero cold test material. Neutrals have apparently failed to respond to the advance in bright stocks and one large refiner is quoting 200 pale at 7½ cents and 200 red at 6½ cents.

STRONG RECOVERY IN EASTERN MARKET

(Continued from Page 79)

believe that little export business will reach here while this state of affairs continues.

The Gulf market is nominally held at 5 cents per gallon for U. S. Motor, 5⅛ cents for 60-62 400 endpoint, 5¼ cents for 61-63 390 endpoint, and 5½ cents for 64-66 375 endpoint. Kerosene for export is quoted at the Gulf at 4 cents per gallon for 41-43 prime white, and 3½ to 3¾ cents for 44 prime white. All of the above quotations are for bulk products.

There were no developments of interest in either Venezuelan or Mexican crude markets during the week.

Petroleum Exports

New business in the local export market was again along routine lines during the past week, with foreign buyers still limiting purchases to immediate shipments in most instances. Operators report that the increases in domestic refined products quotations have quickened interest abroad, and stimulated inquiries somewhat, but actual buying has not developed to the volume which many had looked for.

The following table shows principal exports of refined petroleum products from New York for the past three weeks (all figures in gallons unless otherwise noted):

	Week ended		
	Aug. 29	Aug. 22	Aug. 15
Gasoline	220,000	90,000	130,000
Naphtha	335,000	5,000	360,000
Kerosene	210,000	13,000	8,000
Fuel oil	65,000	340,000	40,000
Lub oil	1,540,000	990,000	735,000
Pet., refined	540,000	715,000	628,000
	Pounds		
Petrolatum	40,000	10,000	
Paraffin wax	1,175,000	1,140,000	1,035,000
Refined		125,000	45,000
Scale	575,000	430,000	55,000
Lub grease	995,000	1,400,000	475,000

Soviet sellers are still furnishing East Coast exporters considerable competition in cased gasoline and kerosene in South American markets, but it now appears that the American companies will be more than able to hold their own against this competition in most instances. In some instances, political sentiment has turned definitely against the Soviet products, and this is expected to react to the advantage of American refined products in the markets affected.

Imports

Imports of crude and refined petroleum at the principal United States ports for the week ended August 29 totaled 1,130,000 bbls., a daily average of 161,429 bbls., compared with 1,034,000 bbls., or 147,714 bbls. daily, during the previous week, and a daily average of 183,429 bbls. for the four weeks ended August 29. Details follow:

(Barrels of 42 gallons)

	Bbls.
At Atlantic Coast ports—	
Baltimore	148,000
Boston	238,000
New York	503,000
Philadelphia	98,000
Total	987,000
Daily average	141,000
At Gulf Coast ports—	
Galveston district	65,000
New Orleans and Baton Rouge	78,000
Total	143,000
Daily average	20,429
At all United States ports—	
Total	1,130,000
Daily average	161,429
Daily average four weeks	183,429

Distribution of total imports is as follows:

	Bbls.
Crude	606,000
Gasoline	168,000
Fuel oil	356,000

California Oil Receipts

Receipts of California crude and refined petroleum at Atlantic and Gulf Coast ports for the week ended August 29 totaled 409,000 bbls., a daily average of 58,429 bbls., compared with 287,000 bbls., a daily average of 41,000 bbls. for the previous week and a daily average of 36,036 bbls. for the four weeks ended August 29. Details follow:

(Barrels of 42 gallons)

	Bbls.
At Atlantic Coast ports—	
New York	377,000
Others	32,000
Total	409,000
Daily average	58,429
At Gulf Coast ports—	
All ports	none
At Atlantic and Gulf Coast ports—	
Total	409,000
Daily average	58,429
Daily average four weeks	36,036

All of the week's receipts from California were gasoline.

Shipments of California refined products eastward during the week included 112,000 bbls. on the tanker Tide Water, for New York; and 44,000 bbls. of gasoline and 30,000 bbls. of kerosene on the tanker Baldbutte, for Baltimore.

Charter Market

Scattered fixtures affecting the American market were reported during the past week, the market having been a little more active than during previous weeks, but most of the trading continued in the foreign trade.

Fixtures reported during the week were as follows:

Motorship Moordrecht (Dutch) 9,000 tons, clean, Black Sea to French Atlantic, 7s, October 15-30 loading.

Motorship Norvinn (Norwegian) 9,000 tons, clean, Black Sea to Shanghai, 20s, September 12/October 15 loading, cancelling.

Motorship O. A. Knudsen (Norwegian) 5,191 net, Gulf to Buenos Aires, September loading.

Motorship Athelempress (British) 9,000 tons, clean, San Pedro to one port Australia and one port New Zealand, 18/-, Australian currency, September/October loading.

Steamer Jenny (Norwegian) 2,682 net, gas oil, Constanza to Ghent, 7/3, option Ostermoor and Hamburg, 7/9, September loading.

Steamer Oil——(British) 8,000 tons, maximum, clean, Gulf to French Atlantic, 9/-, option North Atlantic or Curacao, 8/-, Black Sea, 7/-, or Constanza, 6/9, October loading.

Steamer Athellaird (British) 8,000 tons, creosote, Thames to Chalmette, 6/9, thence Aruba to Medway, 8,000 tons crude, 7/6, prompt loading.

Steamer British Star (British) 5,500 tons crude and fuel oil, Teneriffe to east coast U.K., 7/-, prompt loading.

Steamer Leicesten (Norwegian) 3,651 net, gas oil, Constanza to U.K., 7½d, September-October loading.

Steamer Merope (French) 3,989 net, 4 to 10 voyages, Gulf to French Atlantic, 9s, 3d, one or two ports, October loading.

Motorship Lincoln Ellsworth (Norwegian) 3,206 net, Constanza to French Atlantic.

WATER INFLUENCES FINAL OIL RECOVERY

(Continued from Page 24)

unit basis; Yates Pool, Pecos County, Texas, produced under supervision of an engineering committee, and Oklahoma City Pool, Oklahoma.

The Van Pool has been operated as a unit practically since its discovery and has had the best engineering and geological practices applied to it. Early in its development period wells were located so as to determine the position of the edge water in the structure and from them complete data were secured about this water and its movement up structure has been controlled.

It is now estimated that the potential of this field is about 500,000 bbls. daily but it is being produced at the rate of about 42,000 bbls. per day because it has been estimated that withdrawal of oil more rapidly than this will cause undue movement of the water in the Woodbine formation from which the oil is coming. The rate of production is therefore limited to about 8 per cent of the estimated potential and this is all based upon good engineering practice and true conservation of both gas and water energy within the producing horizon.

In the Yates Pool it is again found that the rate at which the wells are being produced is largely determined by the movement of water within that limestone reservoir. There are a number of wells that will make water if produced beyond certain limits and it has been found that the movement of the water there is not only horizontally through the structure but also vertically. This is to be expected because the pore spaces in this great limestone mass were made by old water movements which leached out the soluble portions of the formation and these old water courses ran down as well as toward the sides of the structure.

The companies operating in the Yates Pool have always recognized the necessity of applying the best engineering practice to the recovery of their oil and the field has been under the supervision of an umpire and engineering consulting committee for a long time. Numerous tests of tubing sizes, bottom-hole pressures and chokes have been made and from the data secured recommendations have been made that have regulated the rate of production to within safe limits and while it is known that Yates Pool can produce in excess of the rate of 70,000 to 90,000 bbls. per day it has been making recently, its limit will not exceed 110,000 bbls. at any time because of pipe line outlet capacity.

A complete report of the engineering committee for the Yates Pool was published in The Oil and Gas Journal of June 18, Page 14, and indicates the vast amount of work that has been done to secure data upon which production conditions might be based.

Water in Oklahoma City Pool

The Oklahoma City Pool, discovered December 4, 1928, has long been looked upon as presenting vast possibilities as a producer of oil and it has been estimated that its potential was as high as 8,000,000 bbls. per day but because of the fact that it has been operated under proration it has never made over 285,000 bbls. in any one day's run, or a total of 73,500,000 bbls. up to September 1, 1931.

The first area to be opened was in the Arbuckle lime and water was found there early in the life of the wells. The amount of water has increased rapidly in the Arbuckle lime area until some wells have made as high as 99 per cent water with some oil and in a few instances wells have actually flowed nothing but salt water.

The zone lying next to the Arbuckle lime is known as the Lower Simpson and the production there was accompanied by water early in the life of the field and effort was made to plug it off with varying degrees of success. Because of the fact that the hydrostatic pressure of the water in the Arbuckle lime is known to be about 2,000 pounds per square inch and it is also known that many of the wells finished early in the drilling campaign in the Arbuckle lime were cased high above the producing formation, it is possible that Arbuckle lime water has migrated down dip through the detrital material lying on top of the Arbuckle lime member, or through some other sand members above the Arbuckle, and in this way been forced into the Johnson sand, from which the oil in the Lower Simpson formation is coming.

Regardless of the manner in which this water has moved through the Johnson sands, it is known that water encroachment in the Lower Simpson formation has assumed quite large proportions and it is no longer profitable to drill wells in any portion of that area because they could not possibly pay out before being taken by water.

This leaves only the Wilcox sand zone in which wells can still be drilled and produced. It is estimated that the Wilcox sand covers about 4,800 acres in this field forming a band 1½ miles wide at the north and northwest end of the field and gradually narrowing to not over one-half mile wide on the southwest and southern portions of the area.

Of this 4,800 acres it is estimated that about 75 per cent or 3,600 acres have been drilled and of the 1,200 acres still possible of being drilled at least 400 acres is within the city limits and because of high property values will never be drilled.

This leaves about 80 wells, one well to 10 acres average, still to be drilled in the Wilcox sand area of the Oklahoma City Pool. There are now 829 wells in Oklahoma City Pool and if the 80 possible wells are added this will give a total of about 900 wells for the area.

If 122 wells are assigned to the Arbuckle lime area, 450 wells to Lower Simpson, it will leave about 328 wells in the Wilcox sand area. All of the Arbuckle wells make water and many of them have been plugged and now are produced as gas wells. Lower Simpson wells are making about 25 per cent water over most of the area and there are now eight wells in the Wilcox sand that are making salt water.

Wilcox Sand Wells

It has been found that the water level in the Wilcox sand is about —5,400 feet below sea level datum and the surface elevation in the north end of the field is about 1,200 feet while at the south end it is around 1,300 feet. One well recently completed in the west side of Section 10 in the north end of the Oklahoma City Field in the Wilcox area found water at minus 5,365 feet or with a penetration into the sand of only about 35 feet, whereas other wells drilled to the east of it into the Wilcox sand had penetrations of from 150 to almost 200 feet. This indicates the position of the water in the Wilcox in that part of the field and requires that care be taken in producing those wells or water movement will be rapid up structure.

In the Wilcox sand at the south end of the field water has increased from 4 to 25 per cent in one month's time and the gas volume accompanying the oil has fallen off about 75 per cent this year. This decrease in gas volume is significant for it heralds the approach of the end of natural flow from Wilcox sand wells and with the movement of water up structure makes it necessary that every one of those wells be produced carefully and at only a limited rate.

From all of this known information it is estimated by many that the Oklahoma

City Pool cannot produce consistently for any length of time more than 170,000 bbls. of oil per day. In the Arbuckle lime it is estimated that there remains not more than 600,000 bbls. of oil that can be recovered, and with the increase of water in the Lower Simpson the production of oil will be limited to the amount of salt water produced along with it.

Salt water in the Oklahoma City Field is costly to handle and dispose of, and, while some wells can be operated by gas lift or even pumped successfully, the amount of oil that can be recovered in that way will be limited because of the quantity of water that will accompany the oil.

The production of the future from Oklahoma City Pool must therefore come largely from the Wilcox sand wells and to recover it will require careful handling of wells and a limit on the amount of oil produced per day, and it therefore is felt that the above estimate of 170,000 bbls. is quite conservative for that area from now on.

Oil Required

This study of the water situation in the six major flush fields of the Mid-Continent area leads to but one conclusion which is that the rate at which oil can be recovered from them depends largely upon the water movement within the reservoirs. There has been a tendency to think of production in terms of so-called potentials, but to the practical man in the field it is known that regardless of the estimated amount of oil within any given formation his problem is to secure it in an economical manner, and every barrel of water he is required to handle along with his oil increases his production costs.

To summarize it is found that these pools can be expected to produce about as follows:

	Bbls. daily
Seminole area	150,000
Oklahoma City Pool	170,000
Hobbs Pool, New Mexico	42,000
Yates Pool, Texas	110,000
Van Pool, Texas	42,000
East Texas Pool	400,000
Total	914,000

The estimate on East Texas is based upon the present conditions there but it is not anticipated that this area will again be permitted to produce any great excess of oil if by so doing prices of crude oil are reduced there and in other fields.

The Federal Oil Conservation Board has estimated that the requirements for this country in the way of domestic production for the remaining four months of 1931 will be a total of 299,052,000 bbls. or at the rate of 2,451,200 bbls. per day.

Of this amount it has been estimated that all oil-producing states except Oklahoma, Texas and California can produce about 378,160 bbls. This figure includes 42,000 bbls. from Hobbs, N. M., Pool.

The balance of the oil that may be expected from the three major producing states will only make the total production for the last half of 1931 amount to about 2,355,160 bbls. or a deficiency of about 96,040 bbls. to be made out by oil withdrawn from storage.

A recapitulation of these figures follows:

	Bbls.
All states except Oklahoma, Texas and California	*378,160
California	525,000
Oklahoma (outside of Oklahoma City and Seminole)	230,000
Texas (exclusive of East Texas, Van and Yates Pools but including Gulf Coast)	350,000
Oil from major pools as tabulated above, omitting Hobbs which is included in first figure	872,000
Total	2,355,160

*This figure includes 42,000 bbls. from New Mexico.

Industry in Strong Position

From this analysis of the situation the industry is evidently in a strong statistical position even though East Texas produces 400,000 bbls. of oil daily, for no oil will go into storage if the above figures are approximately correct. No oil has gone into storage since May, 1930, and it is now reported that the rate of withdrawal is about 75,000 bbls. per day and the leaders of the industry seem anxious that this condition continue and as much storage oil as possible be used so that the 492,768,000-bbl. stock above-ground can be materially reduced.

Without question water movement in all pools will be the limiting factor in the producing rate and even in East Texas it is predicted by many engineers that the 225-bbl. allowable per day will draw in water at a rapid rate because of the grouping of wells close together in many parts of the field which will result in rapid drainage of those areas with an irregular water movement in the sands and probably some large areas of oil being cut off by this manner of production.

The water presents an almost solid front along the west edge of the East Texas Field in both the Woodbine and Eagle Ford formations and practically every engineer testifying before the hearing of the Railroad Commission in Austin, Tex., before the new order was issued, stated that the only way to really control this water movement would be to withdraw the oil first from the front line of wells at controlled rate and from those located farther back from this front water line at other rates and in this way permit the water to move at a regular rate through the producing horizon from west to east.

In some parts of the field there are as many as six wells on six acres of land and if all of those wells produce at the allowed rate of 225 bbls. of oil daily there will be a concentrated withdrawal of oil and gas from that restricted area with the result that water will channel in there and other production may be cut off.

If the engineers for the major companies were permitted to operate the wells in East Texas strictly upon a good engineering basis that field could be made to produce its maximum amount of oil, but if rules are applied to all parts of the field regardless of purely localized conditions the best results cannot be hoped for.

The past experience in Oklahoma City where wells were permitted to flow wide open for a limited time and were then shut in for many days did not improve water conditions there and operators are now willing to admit that the total recovery of the oil will be less than it would have been if the wells had been produced in the manner recommended by the engineers, that is, all to be allowed to produce constantly under proper back pressure and under minimum gas-oil ratios.

The industry is interested only in securing oil and the gas that accompanies it, and where water is allowed to move through the producing formation too rapidly the result is that the cost of recovering the last of the oil is too great to permit the maximum extraction and it is reported that during the recent period of low prices for crude upward of 3,500 wells have been pulled, plugged and abandoned in the districts of southern Arkansas and northern Louisiana alone simply because it was no longer profitable to produce as much as 800 bbls. of water to secure about 20 or 30 bbls. of low-priced oil. The premature abandonment of those wells and many in other fields where water is accompanying the oil at high ratio will have its effect upon the total amount of oil that can be produced in the future and when it is remembered that only 2,988 oil wells were drilled in this country in the first half of 1931, of which 1,683 had an average initial production of only 328 bbls. each, it seems that it will be necessary to draw quite heavily upon stored oil to make up the refiner's requirements for the balance of this year and perhaps for the early part of 1932. Under such conditions it would seem that the price of crude oil should be well above the cost of producing it in all areas and the production companies again be permitted to make some profit.

AUGUST FIELD OPERATIONS NOT UP TO RESULTS REPORTED IN JULY

A summary of field operations east of California in August shows a decline in completed wells of 226 when compared with results in July. Initial production dropped 92,459 bbls.; the dry holes were 51 fewer, and the gas wells showed a decline of 15.

In new operations there was a gain of 120 in new rigs but a decrease of 131 in drilling wells, a net decline of 11 operations.

The initial production given for East Texas, 25,563 bbls. for Gregg County and 29,382 bbls. for Rusk County, is based mostly on the first hour's output and does not represent a full 24-hour production. Therefore the 61,510-bbl. production given in the table is not a true index of the first 24-hour production of the East Central Texas and East Texas fields. The Oil and Gas Journal is endeavoring to correct the manner of reporting completions in East Texas so that a true picture of the field's initial production may be given. For the past three months the field reports have given only the first hour's production of the new wells in that field.

Following is the summary of operations for August:

Summary of All Wells Completed

	Comp.	Prod.	Dry	Gas
Eastern	89	188	21	41
Central Ohio	28	112	6	16
Lima	13	10	0	12
Indiana	11	5	7	3
Michigan	8	2,720	2	3
Kentucky	15	203	7	4
Illinois	2	20	1	0
Kansas	49	23,913	7	20
Oklahoma	39	50,877	10	10
North Central Texas	61	1,131	43	0
East, Central and East Texas	283	61,510	11	0
East Texas gas field	4	0	4	0
West Texas	32	3,828	16	0
Texas Panhandle	8	180	2	4
Gulf Coast	39	14,960	21	0
Southwest Texas	36	592	24	3
North Louisiana	14	1,787	5	6
Arkansas	0	0	0	0
Mississippi	5	0	3	2
Montana	8	420	0	5
Wyoming	11	1,325	2	3
Colorado	0	0	0	0
New Mexico	5	0	2	3
Utah	0	0	0	0
Total August	760	163,781	194	135
Total July	986	256,240	245	160
Difference	226	92,459	51	15

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Eastern	42	152	194
Central Ohio	31	100	131
Lima	4	15	19
Indiana	7	50	57
Michigan	63	100	163
Kentucky	9	89	98
Tennessee	0	14	14
Illinois	2	18	20
Missouri	0	1	1
Kansas	30	95	125
Oklahoma	42	232	274
North Central Texas	20	79	99
East Cent. and East Texas	243	437	680
East Texas gas field	11	40	51
West Texas	12	65	77
Texas Panhandle	14	25	39
Gulf Coast	9	64	73
Southwest Texas	8	92	100
North Louisiana	17	53	70
Arkansas	7	27	34
Mississippi	8	15	23
Alabama	2	3	5
Montana	13	72	85
Wyoming	10	81	91
Colorado	7	83	90
New Mexico	3	47	50
Utah	1	19	20
Total August	615	2,068	2,683
Total July	495	2,199	2,694
Difference	120	131	11

BOISE CITY SYSTEM

A natural gas distribution system has been put in operation at Boise City, Okla., by the Cimarron Utilities Co. The supply comes through a 74-mile line from Dumas, Tex., which was constructed by the Panhandle Power & Light Co. Work on the distribution system was started about July 15 and the supply line was completed about August 1.

TIDAL COMPANY MAKING HIGH QUALITY COKE

(Continued from Page 17)

a typical sample shows the following laboratory test results when running a normal proportion of topped crude and pressure still bottoms:

Tests on Knowles Gas Oil

Gravity	19.7
I.P., °F.	340
2 per cent off at	400
23 per cent off at	600
50 per cent off at	700
B.s. and water, per cent	3.3

As the gas oil leaves the tower it passes through an exchanger in which it is cooled by water. A part of the stream is recirculated back through the system.

Accumulation of Coke

Notwithstanding the cooling effect of the gas oil pumped into the header, temperatures occur there sufficiently high to induce some cracking. This probably accounts for the formation of a small amount of coke particles in the header which are continuously washed down with the gas oil stream and enter the base of the fractionator. From time to time the volume of this coke becomes sufficient to necessitate its removal. This however is accomplished without interfering with operation.

The bottom of the fractionator is in the shape of an inverted cone and as the coke accumulates it fills this. A short length of 12-inch pipe has been welded into its vertex and this has been fitted with two valves. The pipe has sufficient capacity to hold the volume of coke that will normally accumulate in one hour. Each hour the coke is removed by first opening the upper valve to allow the coke to fall into the pipe section, then the upper valve is closed and the section is drained into a sump by opening the bottom valve. This material is mixed with the heavy oil in a sufficient quantity to permit it to flow. Because of its small volume it may be dumped to plant fuel storage and burned with no trouble.

Process Wet Gas

In addition to the gasoline distillate recovered from the process, an appreciable quantity of light gasoline is recovered from the gases. These gases are withdrawn from the accumulator tank and processed through a Braun gasoline plant.

The total volume of raw gas averages 19.63 per cent of the weight of the original fuel oil charge. This gas has a specific gravity of 1.0 and from 1,500,000 to 1,750,000 feet of it pass to the gasoline plant for processing daily.

The gasoline recovered from these gases is relatively volatile, the laboratory distillation tests showing the following results on a representative sample:

Gasoline From Gases

Gravity	68.2
I.P., °F	80
10 per cent	98
20 per cent	116
50 per cent	170
90 per cent	258
Endpoint	298

The antiknock value of this material exceeds the present standard for Ethyl Gasoline.

Several batteries of Knowles coking units were recently placed in operation in California and very soon the Associated Oil Co., another subsidiary of the Tide Water-Associated group, expects to add several such units to its plant at Avon.

The Knowles process, which is fully covered by patents in this country and abroad, is jointly owned by the Tidewater Oil Co. and H. A. Brassert & Co., through the Brassert-Tidewater Development Co. of Chicago.

MEXICAN PRICES

Principal petroleum companies operating in Mexico have agreed not to increase prices of their products at conferences with ministry of industry, commerce and labor, according to a statement issued by the ministry. Statement avers that the ministry convinced these companies that price raising would be to their disadvantage as it would ultimately result in the government being obliged to raise taxes on these enterprises.

HIGH SCHEDULE OF REFINERY RUNS

(Continued from Page 18)

Overton. The plants completed or ready to operate not appearing on the list a month ago include the Sinclair Refining Co.'s new 5,000-bbl. plant at Gladewater, the Southern Oil & Refining Co.'s new 500-bbl. plant at Kilgore, the Heartfield Refining Co.'s 1,000-bbl. plant at Camps Switch, the Citizens Refining Co. at Gladewater and the Gladewater Refining Co., also of Gladewater. New plants were also to be ready for operation at Archer City, where the Young Refining Co. has a 250-bbl. plant. At Seymour where a 250-bbl. plant has been built. The Sinclair Refining Co.'s plant at Fort Worth is rapidly being reconditioned and will be ready for operating within a week. This will have a capacity of 5,000 bbls.

Other plants to be added are the Norgold Refining Co. at Olney which has a capacity of 200 bbls., the Obar Refining Co. at Coleman with 300 bbls. capacity and the Echotex Refining Co. of Echo with 300 bbls. capacity. Another small plant at Brady, Tex., built by M. D. Carson is also ready to operate.

Included in the list of plants under construction are the Bell Oil & Gas Co.'s 10,000-bbl. plant at Footes, in the East Texas area. This will be ready to operate about October 23. The Blue Ribbon Refining Co. at Kilgore will be completed before the end of September and will have a capacity of 1,000 bbls. Another plant to be completed within the next month is the Gladewater Refining Co., which is associated with the Cherokee Oil Co. The latter will supply the crude for the plant. Still another plant is under construction in Gladewater, namely the 500-bbl. refinery of the Indian State Oil Co.

Other Areas

Crude runs in Kansas, North Louisiana and Arkansas show practically no change. Similarly, no change has been shown in the status of the operating and shutdown plants. In West Texas there also were but few changes in the operating status of the plants. Here the crude runs were increased but slightly, the increase of 2,300 bbls. being accounted for by the starting up of the Humble Oil & Refining Co. plant at McCamey and operation of two plants newly added to the list. These latter include the Ewmo Oil Corp. plant at Hawley of 1,000 bbls. capacity and the Concho Refining Co. at San Angelo of 300 bbls. capacity.

REFINERY OPERATIONS IN NORTH CENTRAL TEXAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
All State Refining Co., Thrall	3,000	1,500	1,500
American Refining Properties, Wichita Falls	6,000	3,000	2,700
Apache Refining Co., Sunray	4,000	1,500	2,000
Archer Refining Co., Megargel	1,500	650	650
Arrow Refining Co., Overton	2,500	1,600	800
Atlantic, Pacific & Gulf Refining Co., Wichita Falls	5,000	(*)	(*)
Beacon Oil & Refining Co., Friars Switch	2,500	(*)	2,000
Boone Refining Co., Arp	500	375	350
Carson, M. D., Brady	200	80	....
Central Texas Refining Co., Angus	4,000	700	1,800
Central Refining Co., Friars Switch	10,000	(*)	7,500
Citizens Refining Co., Gladewater	800	....	....
Constantin Refining Co., Overton	3,000	....	....
Continental Oil Co., Wichita Falls	6,000	3,000	3,000
Dale Oil & Refining Co., Electra	4,000	2,900	3,000
Deer Oil Corp., Brownwood	2,000	(*)	(*)
Dixon Creek Oil & Refining Co., Kings Mill	3,500	2,300	2,400
East Texas Refining Co., Henderson	6,000	5,000	5,500
East Texas Refining Co., Longview	10,000	7,000	10,000
Echotex Refining Co., Echo	300	200	....
Empire Oil & Refining Co., Gainesville	5,000	3,600	3,600
Falls Refining Co., Wichita Falls	2,000	1,000	1,000
Gladetex Refining Co.	500	300	....
Gulf Refining Co., Fort Worth	10,000	6,000	5,600
Heartfield Refining Co., Camps Switch	1,000	200	...
Humble Oil & Refining Co., Breckenridge	2,000	500	(*)
Humble Oil & Refining Co., Chilton	4,000	1,000	1,100
Humble Oil & Refining Co., Boggy Creek	5,000	2,700	2,730
Iowa Park Producing & Refining Co., Iowa Park	2,500	1,500	900
Kilgore Refining Co., Kilgore	1,500	500	1,000
Kent Refining Co., Minerva	2,000	500	600
LaSalle Petroleum Co., Burkburnett (Noble)	3,500	(*)	(*)
Macmillan Petroleum Co., Isom	8,000	4,000	4,000
Magnolia Petroleum Co., Fort Worth	12,000	4,300	4,200
Magnolia Petroleum Co. (White Eagle plant), Ft. Worth	6,000	3,300	3,600
Magnolia Petroleum Co., Corsicana	5,000	3,800	4,500
Marathon Oil Co., Fort Worth	5,000	4,000	5,000
Muenster Refining Co., Muenster	300	50	50
Obar Refining Co., Coleman	300	300	....
Norgold Refining Co., Olney	200	80	....
Olney Oil & Refining Co., Olney	2,500	2,000	2,000
Oriental Oil Co., Dallas	5,000	1,500	1,000
Overton Refining Co., Overton	3,500	(*)	2,200
Panhandle Refining Co., Wichita Falls	5,000	3,800	3,800
Petroleum Refractionating Co., Pampa	6,500	6,500	6,500
Phillips Petroleum Co., Isom	18,000	18,000	17,500
Primrose Refining Co., Wichita Falls	2,500	2,500	2,500
Rusk Refining Co., Overton	3,000	1,500	1,500
Sinclair Refining Co., Fort Worth	5,000	(*)	(*)
Sinclair Refining Co., Gladewater	5,000	....	....
Simms Oil Co., West Dallas	4,500	4,000	4,100
Southland Refining Co., Olney	1,000	200	250
Southern Oil & Refining Co., Kilgore	500	500	....
Seymour Refining Co., Seymour	250	200	....
Star Refining & Producing Co., Fort Worth	1,500	1,000	1,100
Slack Petroleum Corp., Camps Switch	1,500	1,000	1,200
Superior Refining Co., Tiffin	2,000	200	200
Taylor Refining Co., Taylor	6,000	3,000	3,000
Taylor Refining Co., Tyler	15,000	9,800	10,600
Taxman Refining Co., Wichita Falls	2,500	2,500	2,700
Texas Eagle Refining Co.	500	300	350
The Texas Company, Dallas	16,000	15,000	15,000
The Texas Company, Amarillo	4,000	3,000	3,000
Thurber Refining Co., Thurber	500	300	300
Tidal Western Refining Co., Burkburnett	3,000	(*)	(*)
Texas Pacific Coal & Oil Co., Fort Worth	3,000	2,800	2,000
Texas Pacific Coal & Oil Co., Caddo	1,000	700	750
Waggoner Refining Co., Electra	3,400	2,500	2,500
Wilcox Oil & Gas Co. (Pampa Refining Co.), Pampa	4,000	3,000	3,000
Young Refining Co., Archer City	250	(*)	(*)
Total	280,250	162,235	168,130

*Shut down.

REFINERY OPERATIONS IN ARKANSAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
James H. Berry & Sons, Waterloo	2,000	(*)	1,000
Henry H. Cross Co., Smackover	6,000	4,600	4,500
Houston Oil Co., Camden	6,000	4,000	3,000
Kettle Creek Refining Co., Pearson	5,000	3,000	2,500
Lion Oil & Refining Co., El Dorado	12,000	7,000	7,100
Macmillan Petroleum Products Co., Norphlet	1,800	2,000	1,600
Ouachita Valley Refining Co., El Dorado	2,000	1,100	1,100
Root Refining Co., El Dorado	10,000	7,000	7,000
Simms Oil Co., Smackover	3,000	2,700	2,700
Union Asphalt Co., El Dorado†	....	....	....
Total	47,800	31,400	30,500

*Shut down. †Reduces residuum purchased from Lion Oil & Refining Co., no crude run.

REFINERY OPERATIONS IN NORTH LOUISIANA
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
Bayou State Refining Co., Hosston	750	(*)	(*)
Crystal Oil Refining Co., Shreveport	14,000	(*)	(*)
D'Artois Oil Refining Co.	50	25	25
Louisiana Oil Refining Co., Shreveport, Bossier	19,000	17,500	17,100
Spartan Refining Co., Shreveport	10,000	10,000	9,000
Stanolind Oil & Gas Co., Superior	3,500	2,800	2,800
The Texas Company, Shreveport	7,000	6,000	6,500
Total	54,300	36,325	35,425

*Shut down.

REFINERY OPERATION IN KANSAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
Altitude Petroleum Corp., Chanute	5,000	1,500	3,000
Barnsdall Refineries Inc., Wichita	4,000	3,300	3,300
Derby Oil Co., Wichita	7,500	4,000	4,500
Eldorado Refining Co., Eldorado	4,500	2,800	3,000
Golden Rule Refining Co., Wichita	1,500	1,000	900
Kanotex Refining Co., Arkansas City	12,000	8,000	9,000
National Refining Co., Coffeyville	6,500	5,000	5,000
Phillips Petroleum Co., Kansas City	7,500	7,500	7,500
Shell Petroleum Corp., Arkansas City	22,000	22,000	22,000
Sinclair Refining Co., Coffeyville	12,000	11,000	11,000
Sinclair Refining Co., Argentine	9,500	5,000	5,000
Skelly Oil Co., Eldorado	23,000	16,500	15,500
Standard Oil Co. of Kansas, Neodesha	20,000	8,000	8,000
Vickers Petroleum Co., Potwin	3,500	3,000	3,000
White Eagle Oil Corp., Augusta	13,000	9,000	10,000
Total	151,500	107,600	110,700

REFINERY OPERATIONS IN WEST TEXAS
(Plants which have been in operation during the past year)

Company and location—	Daily capacity	Runs Sept. 1	Runs Aug. 1
Big Spring Refining Co., Big Spring	2,500	(*)	950
Big Lake Refining Co., Big Lake	2,000	(*)	(*)
Bluebonnett Oil Refining Co., Wickett	5,000	(*)	(*)
Burford Oil Co., Pecos City	6,000	4,500	3,000
Coltex Refining Co., Colorado	10,000	6,700	6,900
Concho Refining Co., San Angelo	300	200	.....
Cosden Oil Co., Big Spring	15,000	8,000	6,500
Deer Oil Corp., Luling	2,500	(*)	(*)
Ewmo Oil Corp., Hawley	1,000	200	.....
Grayburg Oil Co., San Antonio	6,000	800	800
Great West Refining Co., Big Spring	8,500	2,000	2,700
Gulf Oil & Refining Co., Sweetwater	5,000	5,000	5,000
Humble Oil & Refining Co., San Antonio	5,000	1,800	1,810
Humble Oil & Refining Co., McCamey	15,000	2,500	(*)
Magnolia Petroleum Co., Luling	5,000	4,800	3,900
Marathon Oil Co., Del Rio	5,000	1,600	1,500
Misko Refineries, Inc., Laredo	1,500	1,000	1,000
Mid-Tex Refining Co., Midland	2,500	(*)	(*)
Motor Fuel Products Co., Laredo	2,000	500	500
Pasotex Petroleum Co., El Paso	14,000	4,400	7,000
Pioneer Oil & Refining Co., Somerset	1,500	900	900
Richardson Refining Co., Big Spring	6,000	4,500	4,500
Rio Grande Oil Co., El Paso	6,000	(*)	(*)
San Angelo Refining Co., San Angelo	2,000	200	200
Sweetwater Oil & Refining Co., Sweetwater	2,000	(*)	(*)
The Texas Company, San Antonio	3,000	2,500	2,500
The Texas Company, El Paso	2,000	1,000	1,000
Tonkawa Petroleum Co., Pyote	5,000	1,500	1,500
Texas Mexican Oil & Refining Co., Laredo	600	500	500
Texas Petroleum Products Co., Somerset	1,500	1,000	1,000
Wickett Refining Co., Wickett	2,500	500	630
Total	148,900	56,600	54,290

*Shut down.

PETROLEUM PRODUCTION ORDER FOR EAST TEXAS

(Continued from Page 13)

owners of all wells producing salt water comply with the requirements hereof.

Drilling Depth

"5. It appearing from the evidence that actual physical waste has probably resulted in the field by drilling wells to a depth below the water table or too near the water table, it is therefore ordered that hereafter no well shall be drilled into the producing oil sand more than two-thirds of the distance from the top of the sand to the known water level. Immediately on the completion of any well hereafter completed the owner or operator thereof shall advise the deputy oil and gas supervisor in whose territory the well is located the exact depth of such well and the depth into which said oil sand was penetrated, and no person shall be permitted to operate any well not completed in conformity herewith.

"6. The legislature in the recently enacted conservation statute provided that the operation of any oil well with the gas-oil ratio exceeding that fixed by the Railroad Commission shall be regarded as waste. The Railroad Commission is in full accord with the policy thus announced. On several occasions it has requested the enactment of such legislation and now desires to do everything in its power to carry out the legislative will. The evidence offered at the hearing, however, in so far as it dealt with the oil-gas ratios in the East Texas Field was meager and unsatisfactory. It appears that the operators in that field have not made accurate and reliable tests to determine the gas-oil ratios of their wells and have not kept adequate and accurate records. The Railroad Commission feels that further investigation must be made under its supervision before it can prescribe any comprehensive and adequate regulation dealing with gas-oil ratios in said field.

"Accordingly, it is here ordered that it shall be the duty of the Railroad Commission' agents and employes in the East Texas Field immediately to begin the collection of data relating to gas-oil ratios and it shall be the duty of the owner or operator of each well to furnish all information and data that may be requested by any agent or representative of the Railroad Commission, and further, shall equip his well or wells with the necessary equipment for metering gas and taking pressures as, if, and when required by the Railroad Commission.

Oil-Gas Ratio

"The Railroad Commission, while believing, as above indicated, that the evidence offered at said hearing is not sufficient for an order fixing an oil-gas ratio for the oil wells in said fields, yet feels there was evidence suggesting that the commission should do something to prevent, as far as possible, the wasteful utilization of gas energy in the production of oil, while the commission is conducting its investigation as provided for herein. Evidence was offered before the commission tending to show that the best results up to date in the use of gas energy have been obtained when the oil wells in said East Texas Field were producing at the rate of between 200 and 300 bbls. of oil a day.

"It is therefore ordered by the Railroad Commission that the production of oil from every well in the East Texas Field shall be limited to 225 bbls. in any one day for the period of time covered by this order or until the Railroad Com-

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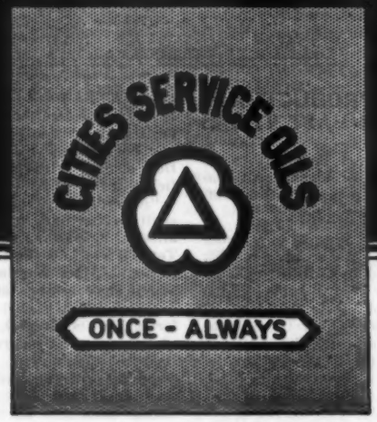

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mission has completed its investigation work in said field and has promulgated such further orders as may be deemed necessary to secure a proper and efficient use of the gas energy in the production of oil. Provided further, that no operator shall be permitted arbitrarily to close his wells or any well down for one day or more and later undertake to produce said well or wells at a rate above 225 bbls. sufficient to make up for the oil not produced when said well or wells were arbitrarily shut down, but if a well is unavoidably shut down for a period of one day or more, then the commission, in its discretion, may grant a special concession to permit such producer to make up his daily average in production. Provided, however, that no well shall be permitted to produce with a gas-oil ratio in excess of 700 cubic feet of gas per barrel of oil.

"7. No air or gas lift artificially applied shall be used in the field.

Cleaning Regulation

"8. No well shall be permitted to clean itself and begin the flow of oil into or on the derrick or derrick floor and in cleaning itself it shall be through a choke and an outlet shall be provided with a terminus into a pit at least 40 feet from the edge of the derrick floor or from any building, tank or other structure which might constitute a fire hazard.

"9. Each well shall be equipped with a blowout preventor before drilling into the oil-producing sand.

"10. No boiler or electric generator shall be placed nearer than 150 feet to any producing well and before any well is brought into production boilers shall be moved back to conform to this rule.

"11. All wells shall be completed in the daylight hours before sunset.

"12. No well shall be brought into production until a duly authorized agent of the commission shall issue a permit to the effect that such well has been properly completed and equipped in accordance with the rules and regulations of the commission. However, such a permit shall not be required or shall be waived if after 72 hours after written notice to said agent, inspection is not made.

"13. All conservation rules of the Railroad Commission heretofore promulgated from time to time, applicable in the East Texas Field, still shall be enforceable unless in conflict herewith. This does not include former proration orders in the field.

"14. The terms 'commission' and 'Railroad Commission' as used in this order shall mean the Railroad Commission of Texas. And further, the terms 'supervisor,' 'deputy supervisor,' 'agents,' 'employes,' etc., as used in this order shall mean employes of the Railroad Commission of Texas only.

Common Purchaser Act

"15. Nothing contained in this order shall be construed to relieve any party, any common pipe line carrier or any common purchaser from the duties and obligations imposed by Chapter 36, Page 17 of the Acts of the Forty-first Legislature at its fifth called session, commonly known as the common producers act, and all amendments thereto including an act passed by the first called session of the Forty-second Legislature, commonly referred to as House Bill No. 19, nor to modify or to change any provision of said acts.

"16. This order shall become effective at 7 a.m., September 5, 1931, and shall remain in full force and effect until 7 a.m., October 31, 1931, unless repealed, changed or modified by the Railroad Commission at an earlier date. It is distinctly understood that this cause is held open on the docket during said period and the Railroad Commission shall have the right and power to set aside, change or modify said order in any respect, based on evidence which was adduced at the hearing in Austin on August 25, 1931, to August 26, 1931, inclusive, without further notice."

EAST TEXAS FIRST DAY RESULTS IN 415,875 BBLS.

(Continued from Page 13)

order, W. S. Farish, president of the Humble Oil & Refining Co., said that it provides for the production of too much oil.

"We are approaching the winter season when the consumption of American oil will fall off 300,000 bbls. to 400,000 bbls. a day as compared to the summer season," Mr. Farish said.

"The findings of the commission apparently are to the effect that per well production between 200 bbls. and 300 bbls. a day does not mean waste. If the commission adheres to this decision, it would mean a larger quantity of East Texas oil than can be readily absorbed. The order apparently perpetuates the inequities now existing due to some areas being drilled more densely than other areas. The order apparently limits future development to one well to 10 acres; this, in my opinion, should have been one well to 20 acres. The order apparently puts a premium on unnecessary development, and benefits those concerns or individuals that can finance their development on a long term basis rather than quick turnover. There is apparently no limit to the number of wells or the amount of oil that the field might produce under the order. In order to avoid the perpetuation of the inequities existing on account of high development on certain leases, producers who are able to do so will promptly drill up their acreage.

"This will lead to the drilling of many thousands of wells and to the withdrawal of excessive quantities of oil from the reservoir and in the dissipation of the gas energy of the pool, lowering of the reservoir pressure and the rapid encroachment of water, which will materially cut down the ultimate recovery of oil from the pool, which is actual physical waste of the worst type.

"The Humble company will naturally, as it has in the past, observe the commission's order in every way possible, and we will endeavor to adjust our business to live under it whether or not we approve of it."

Questionnaire by Commission

The following letter was prepared by Railroad Commissioner Pat M. Neff, and signed by all members of the commission and sent to Gov. Ross S. Sterling September 2:

"The Railroad Commission takes the liberty of asking you, if in all things agreeable, that while the East Texas oil field is under martial law you ascertain for us, through the agencies now under your direction controlling the field, the following information, the date of such information given as of date of your martial law proclamation, which will be helpful to the commission in the enforcement of the conservation laws under our jurisdiction:

"1. The name of each land owner, lease holder, and operator in the proven oil territory.

"2. The amount of oil in storage by each operator.

"3. The number of wells each operator owns or controls, and the date of the completion of each well.

"4. The water condition, if any, of each well, giving the percentage of the amount of water, if any, produced by the respective wells.

"5. The estimated, as nearly as possible, potential of each well.

"6. The amount of oil produced by each well.

"7. Estimate, as near as possible, the oil and gas ratio of each well.

"8. The estimated amount of gas used each 24 hours in the production of oil by each well.

"9. What disposition is made of the gas coming out of each well.

"10. The acreage of each operator, land owner or lease holder in the proven territory.

"11. The amount of pipe line taking oil from the respective wells, giving the date of pipe line connections, together with the rate of transportation.

"12. The size of the pipe line serving each well or wells.

"13. The size of the tubing used in each well in the production of oil.

"14. The amount of bottom head or top pressure, using whatever terms desired to express the pressure used.

"15. The amount of oil shipped by each operator and to whom sold.

"If you can see your way to aid us in the giving of the above information, it will prove of great service in working out the perplexing problems incident to the enforcement of our conservation laws."

Questionnaire to Governor

Prior to the signing of the new order, the commission unanimously sent a letter drafted by Mr. Neff asking Governor Sterling to have the troops in the field ascertain answers to 15 questions which "will be helpful to the commission in the enforcement of the conservation laws under our jurisdiction."

The governor commented that "it would take until Christmas to answer all these questions," but said the commission would be given the information obtained by the troops.

The letter from the commission to the governor follows:

"The Railroad Commission takes the liberty of asking you, if in all things agreeable, that while the East Texas oil field is under martial law you ascertain, for it, through the agencies now under our direction controlling the field, the following information, the date of such information given as of date of your martial law proclamation, which will be helpful to the commission in the enforcement of the conservation laws under our jurisdiction:

"1. Name of each landowner, lease holder and operator in the proven oil territory.

"2. Amount of oil in storage by each operator.

"3. Number of wells each operator owns and controls, and date of completion of each well.

"4. Water condition, if any, of each well, giving percentage of amount of water, if any, produced by the respective wells.

"5. Estimated potential of each well, as closely as possible.

"6. Amount of oil produced by each well.

"7. Estimate, as near as possible, of oil and gas ratio of each well.

Gas Data Asked

"8. Estimated amount of gas used each 24 hours in production of oil by each well.

"9. Disposition made of gas coming from each well.

"10. Acreage of each operator, landowner or leaseholder in the proven territory.

"11. Amount of pipe line taking oil from the respective wells, giving date of pipe line connections, together with rate of transportation.

"12. Size of pipe line serving each well.

"13. Size of the tubing used in each well in production.

"14. Amount of bottom or top pressure, using whatever terms desired to express pressure used.

"15. Amount of oil shipped by each operator and to whom sold.

"If you can see your way to aid us in giving this information, it will prove of great service in working out the perplexing problems incident to the enforcement of our conservation laws."

CALIFORNIA CRUDE OIL PRICES

(Continued from Page 93)

UNION OIL CO. OF CALIFORNIA

Crude Oil Prices for Its Purchases at the Well for Crude Produced in Strict Accordance With the Production Allocations Made by the California Statewide Curtailment Committee Effective 7 a.m., June 26, 1931

(All gravities above these quoted take highest price for that field)

Gravity °A.P.I.	Signal Hill	Alamitos Heights, Seal Beach	Huntington Beach	Athens, Rosecrans, Domingues	Torrance	Santa Fe Springs	Playa Del Rey*	E. Coyote, Richfield	Montebello	Santa Paula	Orcutt	Coalinga	Lost Hills	McKittrick, Kern River, Sunset-Midway, Elk Hills, Buena Vista Hills	Gravity °A.P.I.
11-13.9	....	....	....	....	....	....	....	....	....	....	....	....	....	$.50	11-13.9
14-14.9	$.65	$.65	$.65	....	$.65	....	....	$.65	$.65	$.65	$.55	$.55	$.55	.55	14-14.9
15-15.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	15-15.9
16-16.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	16-16.9
17-17.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	17-17.9
18-18.9	.65	.65	.65	....	.65	....	....	.65	.65	.65	.55	.55	.55	.55	18-18.9
19-19.9	.65	.65	.65	....	.65	....	$.65	.65	.65	.65	.55	.55	.55	.55	19-19.9
20-20.9	.65	.65	.65	....	.65	....	.65	.65	.65	.65	.56	.55	.55	.55	20-20.9
21-21.9	.66	.66	.66	....	.66	....	.66	.66	.65	.65	.57	.55	.57	.55	21-21.9
22-22.9	.66	.66	.66	....	.66	....	.67	.67	.65	.65	.59	.55	.59	.56	22-22.9
23-23.9	.67	.67	.67	....	.67	....	.68	.68	.65	.65	.61	.55	.60	.58	23-23.9
24-24.9	.69	.69	.69	$.69	.68	$.65	.69	.69	.65	.66	.63	.55	.62	.61	24-24.9
25-25.9	.71	.71	.71	.71	.70	.65	.70	.70	.65	.68	.65	.57	.64	.64	25-25.9
26-26.9	.73	.73	.73	.73	....	.65	....	.72	....	.70	.67	....	.66	.66	26-26.9
27-27.9	.75	.75	.75	.75	....	.68	....	.74	....	.73	....	....	.67	.68	27-27.9
28-28.9	.77	....	....	.77	....	.71	....	....	....	.74	....	....	.69	.71	28-28.9
29-29.9	.79	....	....	.79	....	.73	....	....	....	.76	....	....	.71	.74	29-29.9
30-30.9	.81	....	....	.81	....	.75	....	....	....	.78	....	....	.73	.76	30-30.9
31-31.9	....	....	....	.83	....	.78	....	....	....	....	....	....	....	....	31-31.9
32-32.9	....	....	....	.85	....	.80	....	....	....	....	....	....	....	....	32-32.9
33-33.9	....	....	....	.87	....	.83	....	....	....	....	....	....	....	....	33-33.9
34-34.9	....	....	....	.89	....	.85	....	....	....	....	....	....	....	....	34-34.9

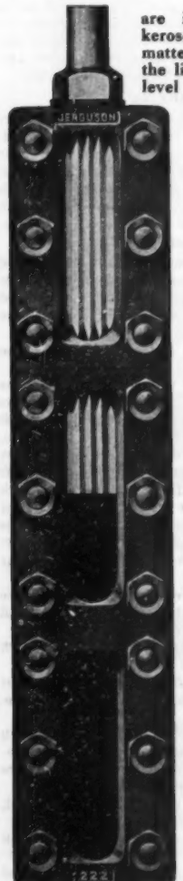
*Subject to a gathering charge of 5 cents per barrel.

NEW FRENCH LINE

The new pipe line which has been provided for the common use of the four oil plants at La Pallice, France, was in operation for the first time on August 1, when 2,700 tons of petrol were unloaded from the French tanker "Capitaine Damiani." The new pipe line is 10 inches in diameter, instead of 6 inches for the old one. The unloading proceeded at an hourly rate of 125 tons, about twice the former practice with the same steamer; higher figures can easily be achieved by ships equipped with more powerful pumps.

JERGUSON

REFLEX GAGES



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Late Fields

(Continued from Page 24)

days. Important tests were about ready for completion and a number of new locations have been announced and material is moving in. It is expected a number of new locations will be staked in Sections 15 and 22-11-3w, on the west side of the Oklahoma City Field, within a few weeks. There are also a number of offset locations that companies will be forced to drill in the near future.

KANSAS

Magnolia Petroleum Co.'s No. 1 McLaughlin, NW cor., Section 31-28-1w, Sedgwick County, found sulphur water in the Simpson sand at 3,796-3,835 feet. It was the second wildcat test the Magnolia Petroleum Co. has drilled on a large block where core drilling and magnetometer surveys gave favorable indications. The test found the top of the Viola lime at 3,776 feet. Four miles north of the test the Marland Oil Co. in 1926 drilled a wildcat to the Wilcox sand and found water. The well had a showing of oil in the Kansas City lime and after making a production test the oil was exhausted.

Drillers of the only test in Finney County in the western part of the State are having difficulty in obtaining a water supply. National Refining Co.'s No. 1 Wells, SW cor., Section 30-23-30w, is shut down while a water well is being spudded.

Other wildcat tests in the State were drilling as follows on the last report: Carter Oil Co. and others' No. 1 Everett, C NE, Section 22-29-21w, Ford County, was drilling at 5,700 feet. It is the deepest drilling test in the State. In the northwestern part of the State J. G. Durham and others' No. 1 Weaver, SE cor., Section 3-2-35w, was drilling at 3,700 feet with nothing showing. Flo and others' No. 1 Shoemaker, SE cor. SW, Section 27-7-26w, in Sheridan County, was drilling at 2,735 feet. It is the only drilling well in the county. The wildcat test started by the Austin Drilling Co. and later taken over by the Agate Oil Co., No. 1 Rockefellow, SE cor., Section 6-13-12w, Russell County, is expected to resume drilling operations in the near future. It is now shut down at 3,374 feet and will be drilled to the Silicious lime.

Magnolia Petroleum Co.'s No. 6 Wheeler, in approximately NW cor. SW NE, Section 19-27-2, a twin, in the Eastborough Pool, in Sedgwick County, found the top of the chat at 2,942 feet and was drilling at 2,950 feet. It will be drilled to the deep pay horizon.

CRUDE PRICE CHANGES

(Continued from Page 94)

over, $2.65; crude naphtha, $3.12; discolored naphtha, $2.88.

"The Texas Company has no posted price for East Texas oil but effective September 5, 1931, and until further notice it will pay for such oil the prevailing price on date oil is run."

LEGAL

Notice of sale of Oil and Gas Lease, Department of the Interior, United States Land Office, Salt Lake City, Utah, Aug. 14, 1931. Notice is given that oil and gas lease on the following described lands in the Virgin oil field, Washington County, Utah, is offered for sale under Section 17 of the act of February 25, 1920 (41 Stat. 437), at the royalty rates and in accordance with the drilling requirements fixed in the standard lease form, copy of which may be procured from the Commissioner of the General Land Office: T. 41 S., R. 12 W., Sec. 14, S½ NE¼, N½ NW¼, SE¼ NW¼, 200 acres. The sale will be held at this office at 10:00 a.m. on September 21, 1931. The successful bidder must deposit on the date of the sale with the Register of the Salt Lake City Land Office, certified check on a solvent bank, or cash, for one-fifth of the amount bid by him, and file the showing of qualifications to receive a lease required by Sec. 15 of the oil and gas regulations. Bidders are warned against violation of the provisions of Sec. 59, U. S. Criminal Code, approved March 4, 1909, prohibiting any unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids in the discretion of the Secretary of the Interior. Eli F. Taylor, Register.

STRONG GAS OIL MARKET AT GULF COAST PLANTS

HOUSTON, Tex., Sept. 7.—Except for gas oils which reflected new strength, all Gulf Coast refinery markets have been holding fairly constant. The slight slipping of North Texas gasoline markets during the week so far has not been reflected on the coast with bulk gasoline continuing firm at 5 cents. Demand, however, was not active and the firmness chiefly was a reflection of low supplies. Tank car gasoline also continued firm at 5¼ cents low. Hopes of moving this market up to 5½ cents and possibly 6 cents have faded when sellers advancing their quotations found they could get very little business at those figures.

Gas oils tightened materially during the week with virtually no material now being available under 2¼ cents. Quotations now range up to 2½ cents with sellers firm at those levels. Gas oil supplies are limited with several refiners sold for several months, and one source for eight months. Anticipation of a strong demand for burner oil also is a material factor in the gas oil market and a number of inquiries have been reported.

Fuel oils, which have been freely available at low prices of 45 to 50 cents in bulk, have shown no improvement. On the other hand there has been no tendency toward further weakening. The bunker market is steady at 55 cents.

Pale and red oils have continued firm although there is no new tendency to stronger prices under present conditions. Further crude advances on the Gulf Coast, however, probably would be reflected in neutral oil advances.

The Gulf Coast situation, with the possible exception of gas oil, still is contingent on the outcome of the East Texas Field. With the uncertainty as to how the new proration order will be taken neither buyers nor sellers have been willing to speculate far beyond day by day requirements.

CORPORATION OWNERSHIP IS IN MANY MORE HANDS

(Continued from Page 96)

first half of 1930 of $1,222,681 equal to $1.22 a share on 1,000,000 no-par shares of capital stock.

British American Oil

British American Oil Co., Ltd., has declared the regular quarterly dividend of 20 cents on the common stock, payable October 1 to stock of record September 14.

Twenty Representative Stocks

The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange and New York Curb, based on closing quotations for Wednesday, was as follows:

Jan. 14	27.31	May 13	20.38
Jan. 21	27.55	May 20	19.25
Jan. 28	27.26	May 27	18.35
Feb. 4	27.26	June 3	18.00
Feb. 11	27.76	June 10	19.62
Feb. 18	28.53	June 17	19.23
Feb. 25	29.33	June 24	22.33
Mar. 7	27.67	July 1	22.32
Mar. 11	26.53	July 8	21.24
Mar. 18	26.78	July 15	19.79
Mar. 25	26.85	July 22	21.33
Apr. 1	24.80	July 29	20.68
Apr. 8	25.52	Aug. 5	20.80
Apr. 15	24.72	Aug. 12	21.00
Apr. 22	22.73	Aug. 19	24.25
Apr. 29	20.54	Aug. 26	23.26
May 6	20.74	Sept. 3	22.30

Richfield Oil of California

Operations of Richfield Oil Co. of California for the period January 15 to May 31, 1931, resulted in a net loss of $2,543,349, according to the second report filed with the U. S. District Court by William C. McDuffie, receiver.

Operations of the California company resulted in a profit before depletion, depreciation and losses sustained by subsidiary companies of $895,124. Charges for depletion and depreciation of $2,250,665 resulted in a loss for the California company of $1,355,541. Operations of subsidiary companies resulted in a net loss of $1,187,808 bringing total loss for the period to $2,543,349.

Columbia Oil

Statement of Columbia Oil & Gasoline Corp. and subsidiaries, (affiliated with Columbia Gas & Electric Corp.) for six months ended June 30, 1931, shows net income of $267,403 after depreciation, depletion, taxes, interest, etc., equivalent to 79 cents a share on 337,500 no-par shares of $6 preferred stock. This compares with $1,804,409, equal after dividend requirements on first preferred stock, to $2.35 a share on 337,500 no-par shares of $6 second preferred stock in first half of 1930.

For 12 months ended June 30, 1931, net income was $1,166,219, equal to $3.45 a share on first preferred stock.

Solar Oil

Solar Refining Co. has sent a letter to its stockholders calling special meeting October 1 to vote on proposed merger with Standard Oil Co. of Ohio.

DEATH OF WILLIAM V. MILLER

William V. Miller, one-time president of the National Transit Co. of Oil City, Pa., died August 28 at his home at Fontana, near Los Angeles. He was identified with the Transit company for 48 years and retired in January, 1920. His age was 75.

Mr. Miller was one of the pioneers in the oil field, starting as a telegraph operator at Troutman Station, in Butler, Pa. He was in the service of the National Transit at Petrolia during the Cherry Grove excitement, later at Warren and finally in Oil City. From 1896 to 1911 he was general superintendent of the company, becoming president 20 years ago.

TANK WAGON CHANGES

(Continued from Page 94)

reductions in the tank wagon and station prices in Massachusetts, Rhode Island and Connecticut, August 31.

Standard Oil Co. of Louisiana advanced the gasoline tank wagon and station prices in Chattanooga, Tenn., to 18.5 cents on August 31.

Magnolia Petroleum Corp. advanced the gasoline tank wagon and station prices 1 cent each in Fort Worth, Houston and San Antonio, Tex., August 26. In El Paso these prices were advanced 2 cents on August 21. On August 11, Muskogee, Okla., gasoline tank wagon and station prices were reduced to 11 and 13 cents. On August 25 these prices were advanced to 14 and 16 cents in Oklahoma City. On August 26 the station price was advanced to 17 cents in Little Rock, Ark.

Standard Oil Co. of New Jersey advanced the gasoline tank wagon and station prices 1 cent throughout its marketing territory on September 5.

MEXICAN PRODUCTION

Crude oil production in the Panuco and Tuxpan districts averaged 66,862 bbls. daily during the week ended August 22. Heavy oil production averaged 37,797 bbls. daily while light oil yield averaged 29,064 bbls. daily.

AUTOMOBILE OUTLAY

Outlay on autos totals one-fifth of retail dollar. Only food accounts for larger percentage of expenditure in year, according to Census Bureau. General sales total $407.52 per capita. Business of apparel stores, including women's and men's wear, amounts to one-twelfth of the whole.

COLON PRODUCTION

Production for the week ended August 28, for Colon Oil Corp.'s subsidiary in Venezuela, was 154,030 bbls.

GEORGE YUILL DIES

CHATHAM, Ontario, Sept. 7.—George Yuill, of Calgary, well known in western Canada oil circles, was drowned while swimming in the Elbow River recently. Mr. Yuill was a native of Greenock, Scotland, and was in his sixty-third year.

THE BEST AND WORST YEARS SHOW SOME STARTLING CONTRASTS

By James McIntyre

The best year in the past decade in the Mid-Continent, 1925, and the worst year, 1931, show a startling difference in production and values.

In the second quarter of 1925, the returns to the Texas state auditor indicated a total production in that State in April, May and June of 34,456,566 bbls., for which producers and royalty owners received a gross total of $69,953,903, an average of $2.03 per barrel. In the second quarter of 1931, the total production reported was 84,785,628 bbls., for which $35,214,384 was received, an average of 41½ cents per barrel.

In the second quarter of 1931 the producers received $35,214,384 less than they did five years previously for a total crude oil output 50,329,062 bbls. more than their production of five years ago.

As The Oil and Gas Journal pointed out four years ago in comparing results in 1925 and in 1926, the more excess oil produced the less money producers have to show on their books.

Producers learned a bitter lesson in 1926 during the Seminole debacle, and they tried to profit by it by prorating subsequent fields in Oklahoma, Kansas, East Central Texas, West Texas, New Mexico and California and the Pennsylvania grade fields, but the lesson was all forgotten with the opening of East Texas.

A Sorry Picture

A sorry picture is presented when we compare the present year with 1925. The Texas gross production report published in this issue of The Oil and Gas Journal gives the figures in detail for the second quarter of 1931. From that long table and from the table for the same period in 1925 we have extracted some figures on a few of the leading oil companies.

We find that five years ago the Gulf Production Co. and royalty owners on its properties received $6,244,355 for the Gulf's three months' production of 3,378,142 bbls. of crude oil, an average of $1.85 per barrel. Alas! in the same period this year the same company and royalty owners received only $2,937,797 for the enormous production of 6,795,708 bbls. of oil, an average of 43 cents per barrel. The company in the second quarter of 1925 realized 112 per cent more money than in the same quarter of this year, although this second quarter it produced 101 per cent more oil than in the corresponding period in 1925.

Right down the line through the list of leading oil companies the story is much the same.

The largest producer in Texas, the Humble Oil & Refining Co. and its royalty owners, in the second quarter of 1925 realized $8,619,412 for 4,533,396 bbls. of oil, an average of $1.90 per barrel, while in the same period this year the company and the royalty owners received $3,856,814 for 7,862,046 bbls. of oil, an average of 49 cents per barrel. Here again it will be seen that the producer supplied the dear public with a whale of an increase in gasoline material and wrote into his books and those of the royalty owners $4,762,598 less than in a year when operators were "scrambling for crude."

The Texas Company and its royalty owners got a worse jolt than the other big companies, because the company had a bigger production in the second quarter of 1925 than in the same period this year. In the second half of 1925 it produced 3,184,794 bbls., worth on the market $6,206,996. In the same quarter this year it produced 2,915,218 bbls., worth on the market $1,493,634. Its production fell off 269,576 bbls. and its receipts fell off $4,713,362. It received $1.95 per barrel in the 1925 period and 51 cents in the 1931 period. Its production fell off only 2,930 bbls. per day, but the income fell off more than $51,000 per day.

The Magnolia Petroleum Co., the Pure Oil Co., the Sun Oil Co. all show a much larger production, but a much less monetary return for it.

The Humble, Gulf, Magnolia, Pure, Sun and Texas companies are all refiners and marketers, as well as producers, and it may be said that they made up for a part of this loss in crude oil income in the refining and marketing end of their business. Refiners do not as a rule profit from low priced crude oil. On the contrary, most of them do better on a high crude market. The writer recalls a certain old refinery in Titusville operating on $6.10 Pennsylvania oil back in 1920 that made $400,000 that year with a plant that was not worth much more than $400,000. In the past year, with Pennsylvania grade crude down to $1.50, the refinery gave up the ghost. It lost so much money on low-priced crude and lower priced refined products that there was no more to lose, and it quit.

Producing Companies Hard Hit

If the integrated companies had some opportunity to make up for their crude losses, the strictly producing companies had no way of doing so. The Big Lake Oil Co. in the second quarter of 1925 produced 1,202,442 bbls. valued at $2,419,577, or $2.01 per barrel. In the same quarter this year the company produced 1,279,023 bbls. valued at $546,082, or 43 cents per barrel. It produced 76,581 bbls. more in the 1931 period but received, together with the royalty owners, $1,873,495 less for the increased production. The Group One Oil Corp., with an increase of 8,261 bbls. production, shows a drop in receipts of $1,339,471.

Some of the smaller producing companies show a paltry return for their crude produced in the second quarter of 1931. For example, the Arrow Oil & Gas Co. produced 93,750 bbls. valued at $18,750, or an average of 20 cents per barrel. In the same quarter of 1925 that quantity of oil would have brought a return of about $187,500, or 10 times as much as this year's price brings. The Amerada Petroleum Corp. produced 228,713 bbls. valued at $71,390, or 31 cents per barrel. The British American Oil Producing Co. in the second half of 1925 received $85,632 for 36,193 bbls. produced, an average of $2.37 per barrel. In the same period this year it received $108,994 for 411,229 bbls. produced, an average of 26 cents per barrel. It received 28 per cent more money in this year's second quarter but to do so produced 1,036 per cent more crude oil.

Case of Mr. Estes

Take the case of Joe E. Estes of Tyler. He is a namesake and a fellow townsman of one of the most persistent advocates of wide-open production of the East Texas Field. Joe Estes produced 46,012 bbls. of oil, for which he was paid $13,793, or an average of 30 cents per barrel. Had East Texas been restricted to a production not exceeding market demand he would have got, say, $46,000 for it, maybe more.

The year 1925 was the best year in the last decade for the oil industry. It was a year where up to the first of October there was not enough production to supply the market and oil was being drawn from storage. Seminole upset this when its first 100 wells were producing 100,000 bbls. a day, which started the first of a series of price declines that ended when proration was applied to the Seminole area. Successive big fields were all subjected to voluntary curtailment but the new crop of oil men in East Texas, many of whom had no background to guide them, together with politicians, local chambers of commerce, local editors and others ignorant of petroleum economics, joined in a clamor for a wide-open policy in the East Texas Field, and they got it. The above figures taken from official Texas state records show the result. East Texas has been yielding dimes instead of dollars, and the remainder of the State suffered the fate of the innocent bystander.

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IMPORTS OF CRUDE DECREASE AND WAX INCREASE INTO U. S. IN JULY

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Sept. 5.—During the month of July there was a pronounced decrease in the importation of crude oil and gasoline, and a considerable increase in imports of paraffin and paraffin wax into the United States.

In the same month the exports of petroleum and products dropped about one-half in value with almost as great decrease during the seven months ending July.

The value of all petroleum products imported in July was $7,722,601 compared with $13,665,469 in July, 1930. according to the Monthly Summary of the Bureau of Foreign and Domestic Commerce.

For the seven months ending with July the value of all petroleum products imported was $60,581,146, a decrease from the $86,265,488 value of such products imported in the similar period of 1930.

In July 3,588,448 bbls. of crude oil valued at $249,267 were imported, a decrease from 5,876,946 bbls. valued at $5,849,945 imported in July, 1930.

During the seven months' period ending with July the crude imports were 29,097,614 bbls., valued at $26,421,768. a decrease from 37,006,274 bbls. valued at $38,796,296 in the same period of 1930.

During July crude imports came from Venezuela to the extent of 1,728,907 bbls.; Mexico, 827,000 bbls.; Colombia, 504,000 bbls.; and the Netherland West Indies, 466,552 bbls.

Topped, including fuel oil, was imported to the extent of 1,886,124 bbls., nearly all of which, 1,740,381 bbls., came from the Netherland West Indies. This was a decrease in the total quantity imported from 2,285,876 bbls. in July, 1930.

Gasoline, naphtha and other finished light products imported aggregated 1,527,903 bbls. valued at $3,783,565 compared with 1,740,873 bbls. valued at $6,078,184 imported in July, 1930. Most of the gasoline, or 1,376,476 bbls., came from the Netherland West Indies, being a decline from such imports from those islands from 1,621,445 bbls. in June, 1930.

It will be observed that the price per barrel for gasoline, naphtha and other finished light products in July was about 60 per cent of the price in July, 1930.

Imports of kerosene and lubricating oil were negligible but 2,537,480 pounds of paraffin was imported against only 1,505,924 pounds in July, 1930.

Exports

The exports of petroleum and petroleum products in July were valued at $21,975,481, a decrease from exports valued at $42,632,763 in July, 1930. For the seven months ending with July exports of petroleum and products were valued at $169,519,776, a decrease from $312,828,952 in the seven months of 1930.

Crude petroleum exported in July consisted of 2,620,953 bbls. valued at $1,716,083 compared with 1,973,084 bbls. valued at $2,760,103 exported in July, 1930.

These crude exports for July brought exports in quantity for the seven months' period almost equal to the similar period of 1930. During the seven months of 1931 crude exports amounted to 14,472,906 bbls. valued at $12,367,104 compared with 14,065,239 bbls. valued at $19,257,418 in the same period of 1930. Of the July exports Canada took 1,643,348 bbls., Japan being the next largest customer taking 211,910 bbls.

Refined oils exported in July amounted to 8,441,037 bbls. valued at $19,045,924 showing a vast decrease in price from the 10,305,061 bbls. valued at $38,167,357 in July, 1930. During the seven months' period the decrease in exports of crude was from 75,655,161 bbls. in 1930 to 55,212,142 bbls. in 1931.

Gasoline, naphtha and other light finished products exported in July amounted to 4,165,944 bbls. valued at $9,006,695, a decrease from 5,508,604 bbls. valued at $22,458,293 in July, 1930, showing how cheaply the foreigner has paid for his gasoline compared with July, 1930. During the seven months' period gasoline exports aggregated 27,087,763 bbls. valued at $71,942,621 while for the 38,944,551 bbls. exported in the same period of 1930 the price paid was $160,647,689.

Kerosene oil exported in July aggregated 1,213,980 bbls. valued at $3,269,273, compared with 1,019,608 bbls. valued at $4,474,543 in July, 1930.

Gas and fuel oil exports in July amounted to 2,532,665 bbls. valued at $2,312,374, a decrease from 2,854,016 bbls. valued at $2,997,985 in July, 1930.

Exports of fuel or bunker oil for vessels in foreign trade (not included in domestic exports) aggregated 3,839,279 bbls, valued at $3,231,494, a decrease from 4,315,653 bbls. valued at $4,539,074 in July, 1930. This fuel oil was delivered to American vessels in July, 1931, to the extent of 1,710,180 bbls., foreign vessels receiving 2,129,097 bbls.

Lubricating oil was exported in July to the extent of 518,987 bbls. valued at $4,336,710, a decrease from 908,012 bbls. valued at $8,071,959 in July, 1930.

Exports of red and pale oil decreased from 533,677 bbls. in July, 1930, to 304,009 bbls. in July, 1931; black oil exports decreased from 91,567 bbls. in July, 1930, to 68,338 bbls. in July, 1931. Cylinder oil exports decreased from 282,768 bbls. in July, 1930, to 146,440 bbls. in July, 1931.

Exports of lubricating greases decreased from 7,001,200 pounds in July, 1930, to 6,957,641 pounds in July, 1931.

Paraffin wax exports decreased from 20,389,111 pounds in July, 1930, to 17,282,651 pounds in the same month of this year. Of the paraffin wax exported in July, 4,945,672 pounds were unrefined, and 12,336,979 pounds were refined.

Exports of petroleum asphalt dropped from 28,559 tons to 18,230 tons from July, 1930, to July of this year.

DRILLING AND REFINING MACHINERY EXPORTED

By Charles E. Kern
Washington Bureau, The Oil and Gas Journal

WASHINGTON, D. C., Sept. 7.—Soviet Russia in Europe received more oil well and refining machinery exported from the United States during the month of June than any other nation. The total value of oil drilling machinery shipped to Soviet Russia was $77,049, and of other oil well and refining machinery was $163,896, a total of $240,945.

The next largest volume of such exports went to Rumania, the total value of which was $108,944, of which $99,616 was for refining and other than oil and gas drilling machinery.

Germany took $25,872 of drilling and only $5,552 of refining machinery.

France called for refining machinery almost exclusively, taking $82,690 worth and only $1,002 drilling apparatus.

To Canada was exported $19,654 of oil and gas well drilling machinery and $35,756 of refining machinery.

Mexico took $30,685 drilling and $41,628 refining machinery.

The Argentine received in June $21,254 worth of drilling and only $3,968 worth of refining machinery.

Colombia called for drilling apparatus to the extent of $14,471 and only $901 worth of machinery for refining.

Peru showed most interest in refining taking $24,927 worth of machinery for that purpose.

To Venezuela was exported $10,037 worth of drilling apparatus, British India taking $36,558 worth, British Malaya $11,918 worth, with comparatively small quantities of machinery for refining.

HALF OF GASOLINE EXPORTED IS MANUFACTURED IN U. S. REFINERIES

The United States exports less than half of the gasoline shipped in the world and since 1924 has dropped from exporting 74 per cent to 40 per cent at present but it still holds a very substantial lead over any other country, according to very complete analysis recently completed by the Department of Commerce.

Russia's proportional gain in the market has been larger than that of any other country, it was pointed out, but the closest competitor of the United States is the Netherland West Indies, whose share of the world trade was 13 per cent in 1930, compared with only .5 per cent in 1921, and with a percentage of 49 for the United States last year. This country's percentage has fallen from 72 per cent in 1924.

The following additional information was made available from a survey of the international petroleum trade just completed by the Minerals Division of the department:

Gasoline exports of the United States last year totaled 63,195,331 bbls., compared with 60,006,674 bbls. The Netherland West Indies had an increase proportionately larger, from 9,713,589 bbls. to 17,042,001 bbls. Russian exports rose from 8,660,350 bbls. in 1929 to 11,383,561 bbls. last year.

Although the United States is the largest producer of crude petroleum, it has never during the past 10 years been the largest exporter because it prefers to ship refined products. It has, nevertheless, been an important factor in the development of the international crude trade.

Venezuela has been the leading exporter for several years, her total in 1930 being 135,305,226 bbls., the United States following with 23,704,162 bbls.

The great growth in world exports of gasoline is principally to be found in the advance of the petroleum industry and trade of the Netherland West Indies, Russia, Persia, and Rumania. For the first named, increasing its percentage in a growing market has meant an extremely rapid progress, most of which has been evident during the years when the proportional share of the United States was declining.

This development in the West Indies has been almost the reverse of the movement in the Netherland East Indies, whose trade has had a course somewhat similar to that of the United States. It has increased steadily during the last decade yet has lost in the proportional share of the world market every year until 1929 and 1930, when it recovered slightly to 9 per cent. Its 1921 share was 23 per cent.

Russian gasoline exports surpassed those of the Netherland East Indies in 1930 to bring the former country to third place. An exceptionally large advance in Persian exports brought the country's share of the world total to 8 per cent. Rumania, in sixth place, behind Persia, accounted for 7.4 per cent of the total last year.

Substantial increase in gasoline consumption is shown for practically all countries during the past decade. With the exception of a few countries, like Argentina, which has increased gasoline production from domestic petroleum, nearly all nations have increased their purchases from foreign sources.

With the exception of Cuba and British Malaya, imports of gasoline by all heavy purchasers show an increase in the amount bought from the United States. At the same time the proportion of United States gasoline imported by these countries has fallen off, with the exceptions of Germany, the Netherlands Indies, Japan and Argentina.

More than half the 20 largest importers purchased more than 50 per cent of their imports from the United States in 1930, and Canada got 92 per cent of her imports from this country.

The United Kingdom is the world's largest importer of gasoline, followed by the United States. The United Kingdom imported 27,274,548 bbls. last year, and the United States took 16,926,800 bbls. This was a gain for the United States of 92 per cent over 1929.

Practically the whole of the United States imports of gasoline come from the Netherland West Indies. France, Germany, Australia and Canada follow the United States as gasoline importers.

There have been changes in the ranking of crude oil exporting nations in recent years. As recently as 1926 Mexico exported more crude petroleum than any other country, but in 1929 it was in fourth place, surpassed by Venezuela, the United States and Colombia.

In 1930 it was being rapidly aproached by Persia, which is increasing its exports while those of Mexico are being reduced. In the case of Mexico there has been an actual loss in quantity of export as well as in position.

Colombia and Persia, however, have pushed forward the quantity of their crude shipments but have dropped in proportion to the total exports.

United States exports of crude last year were 23,704,162 bbls., a drop of 10 per cent from the 26,394,349 bbls. total for 1929. This decrease was considered somewhat sudden, since up to last year both the volume of shipments and the rate of increase had been improving.

TRINIDAD DRILLING HOLIDAY

NEW YORK, Sept. 7.—The government of Trinidad, British West Indies, has granted oil interests a moratorium with respect to drilling obligations on all Crown lands on the island. The action of the Trinidad government was taken to enable Trinidad operators holding government leases to curtail their drilling expenditures and operations pending a more favorable world market for oil.

OUTPUT IN RUMANIA DROPS

NEW YORK, Sept. 7.—June production of crude petroleum in Rumania totaled 566,212 tons, as compared with 597,520 tons in the previous month and 517,575 tons in June, last year. The Prahova producing territory yielded 370,529 tons in June of this year, against 378,843 tons in June, 1930, while the Dambovitza Field produced 186,418 tons, against 124,652 tons in the same month last year.

DOMESTIC EXPORTS OF PETROLEUM AND REFINED PRODUCTS

		—Month of July—		—7 mos. ended July—	
		1930	1931	1930	1931
Petroleum—Crude	Bbls.	1,973,084	2,620,953	14,065,239	14,472,906
Petroleum—Crude	$	2,760,103	1,716,083	19,257,418	12,367,104
Total refined petroleum	Bbls.	10,305,061	8,441,037	75,655,061	55,212,142
Total refined petroleum	$	38,167,367	19,045,924	279,292,302	146,793,942
Gasoline, naphtha and other light products	Bbls.	5,508,604	4,165,944	38,944,551	27,087,763
Gasoline, naphtha and other light products	$	22,458,293	9,006,695	160,647,689	71,942,621
Oils, illuminating	Bbls.	1,019,608	1,213,980	9,964,976	7,233,080
Oils, illuminating	$	4,474,543	3,264,273	39,473,758	21,268,009
Gas and fuel	Bbls.	2,854,016	2,532,665	20,490,578	16,290,879
Gas and fuel	$	2,997,985	2,312,374	20,720,210	15,258,091
Lubricating	Bbls.	908,012	618,787	6,156,872	4,538,655
Lubricating	$	8,071,959	4,336,710	57,070,437	37,549,987
Other refined petroleum	Bbls.	14,521	9,661	98,084	61,765
Other refined petroleum	$	164,577	125,872	1,380,208	775,234
Paraffin wax	Lbs.	20,389,111	17,282,661	156,317,253	152,654,510
Paraffin wax	$	727,611	491,235	5,973,532	4,665,439

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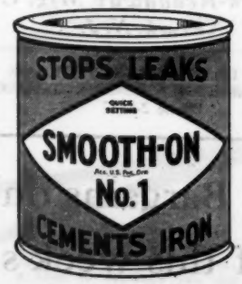

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Read the Classified Bargains on pages 76 and 77 of this week's issue.

Arnold and Kemnitzer Present Valuable Book on Production of Oil

Ralph Arnold, geologist and petroleum engineer, and William J. Kemnitzer, economic geologist, who has made a specialty of research work, are the joint authors of a work entitled Petroleum in the United States and its Possessions (Harper & Brothers, New York, publishers), which has just been issued. It is the largest single volume on all branches of the production division of the petroleum industry that has ever been compiled and covers the subject in so exhaustive a manner, and in such well grouped form, that little, if anything, is left out that is essential to oil men who may want to know more about their business than the mere recovery of the crude and the price they receive for it.

Messrs. Arnold and Kemnitzer review the history of oil production in the country as a whole, and then treat each field separately, giving a historical review, a chronological list of the oil and gas pools, a geological review, a generalized stratigraphic outline of the rocks, structure, physiography and geography, and classification of land for oil and gas. Under the head of Technological and Statistical Review the authors review drilling and development work, giving drilling costs, average depths, drilling time, number of wells drilled and the results of such drilling, production by pool from the beginning of the field, natural gas produced, percentage of failures in wildcat drilling and in "close in" drilling, quantity and value of crude produced, graphs showing trend of drilling, production, values, etc., an economic review of each division and the future possibilities. Within the foregoing list of subjects is a mass of information of great value to practical and technical men and students of petroleum conditions.

A portion of the book is given over to nonproductive states with a review of their petroleum and natural gas possibilities. These states are treated from every oil angle, special attention being given to the geology of the various states.

Two double-page maps in colors are valuable features. One is a generalized geological map of the United States and the other an outline map of the United States showing the present proved oil and gas fields and the probable favorable territory, the unfavorable and the impossible.

A brief review of the work of Messrs. Arnold and Kemnitzer cannot begin to bring out the treasures deposited in the book in the form of information. Mr. Arnold began the compilation of information for this work in 1918 and worked on it whenever his otherwise busy life permitted until 1927 when he associated Mr. Kemnitzer, who has with a considerable staff of assistants made it his principal work ever since.

The first edition is limited to 2,000 copies. The authors call attention to the fact that this book is one of a series: first, "Principles of the Geology, Technology and Economics of Petroleum"; second, "Petroleum in the United States and its Possessions"; third, "Petroleum Outside of the United States," and fourth, "Economics of the Petroleum Industry."

SINCLAIR BACK FROM EUROPE

NEW YORK, Sept. 7.—Earl W. Sinclair, president of Sinclair Consolidated Oil Corp., has returned from a European trip, during which he surveyed the oil situation abroad. He said there has been a decided increase in oil consumption in Europe during recent months.

Commenting on the compulsory shutdowns of Mid-Continent fields in a campaign to establish $1 per barrel minimum price for crude, Mr. Sinclair said that there is too much oil from Venezuela and Russia available, and that excess supplies from other fields would continue to militate against American oil markets. Russian oil, he said, is still making inroads into sales of American and other petroleum products in Europe.

IMPORTANT OIL FIELDS PREDICTED IN ALBERTA

Addressing the Oil and Gas Association of Alberta at Calgary recently, Glen M. Ruby, president of the Nordon Corp., predicted important oil fields in Alberta: In part Mr. Ruby said:

"During the past five years I have supervised the expenditure of nearly $500,000 in surface geological work and shallow core drilling, I can now say that many oil fields will be found in Alberta.

"Every petroleum geologist coming into Alberta makes the mistake of estimating this country by measuring sticks he has acquired elsewhere. He does not realize that the geology changed at the border. Too many wells have been located by geologists who thought they saw a duplication of conditions which had brought them success elsewhere. Also too many wells have been located without any regard to sound geological principles for any district.

"It is only by the laborious work of acquiring an understanding of Alberta geology, and then by carefully comparing it, feature by feature, with proven districts elsewhere, that the differences and similarities show up.

"The many oil seeps and showings in wells should indicate to you that this is an oil province. Exactly as in gold, it is not always advisable to prospect where you see the color. The entire foothills belt is excellent territory, but I must confess that I would hesitate to recommend any location. The problem there is entirely structural. We know that enormous overthrusts have skidded the geology off its roots, and if another Turner Valley is discovered, it will be by good luck or a better understanding of structure than has been demonstrated up to the present.

"It is the plains area which I believe, will provide the first major discoveries. We have penetrated the mask of glacial drift with core drills and found the type of structure which is universally regarded as favorable to oil accumulation.

"This district lies between the Sweetgrass arch on the east and the limits of practical drilling depth on the west. The resultant anticlines are comparable to those in northern Oklahoma, both as to the system of doming at intervals and the underlying causes.

"Whether oil will be found in these structures cannot be proven without drilling. I leave you to estimate the chances after you have considered this statement: Every series of oil fields in the world lies in or around a marine sedimentary basin and every marine sedimentary basin of drillable depth of which I know, and which has been adequately prospected after geological study, is already producing oil.

"With the exception of Turner Valley on the west and Red Coulee and the northern Montana fields, which are on the arch rather than in the basin, we cannot say that the Alberta geosyncline has yet received one conclusive test."

STATE SURVEY SHOWS NO YATES VACANCIES

SAN ANTONIO, Tex., Sept. 7.—No vacancies in the Yates oil field, in Pecos County, were found by J. A. Simpson, Tom Green County Surveyor, in a survey which he has just completed for the land commissioner. His report will be the basis on which the State will attempt to settle a large number of suits arising out of alleged vacancies and which have tied up oil royalties estimated to total $30,000,000 to $40,000,000.

An amended petition is being written to be filed by the State in the largest suit an attorney general has ever placed on the dockets in Texas. The land involved includes the world's largest oil well, estimated at 206,000 bbls. production per day. The amended petition is being drawn by Assistant Attorney General George T. Wilson, who will file it shortly with the hope of having the case tried in January.

The allegations in the amended petition will be based on data compiled in a survey of the Yates oil area made by

state surveyors to prove that the State's theory of the boundaries is correct which, if upheld, would sustain the school fund's royalty interest to 700 acres of land in the rich oil territory, including the giant well.

This suit was filed by the preceding attorney general December 24, 1930, against Whitesides and others, and would forever establish the boundaries of the famous Yates Pool, one of the richest in the world. Whitesides is seeking to have boundaries established that would deprive the school fund of its royalty income from heavy oil producing acreage. The larger oil companies, lessees and the royalty owners are mostly on the side of the State and their counsel will collaborate in prosecuting the State's theory of the boundary lines.

Land involved in the suit is valued at more than $20,000,000.

MINERAL LAW SECTION TO DISCUSS OIL LAWS

WASHINGTON, D. C., Sept. 7.—The legal problems of the oil industry will receive special attention at the annual meeting of the Mineral Law Section of the American Bar Association to be held at Atlantic City, N. J., September 16, which is the day preceding the annual meeting of the American Bar Association proper.

Of especial interest will be an address by James G. Stanley, of New York, formerly general counsel of the Continental Oil Co. His subject will be "The Drama of the Oil Industry." Mr. Stanley will suggest some methods for the conservation of oil that will assist the industry in placing itself on a more businesslike basis in the future. These methods will call for legislation by Congress.

Rush C. Butler of Chicago will submit a paper on "The Federal Anti-Trust Situation," that will have a bearing on petroleum.

There will be a report of the Conservation Committee of Nine, that being the committee that had considered remedial oil legislation. It will be submitted by Walter F. Dodd of Chicago.

Cicero I. Murray, chairman of the Oil States Advisory Committee on Petroleum Conservation, will speak on "The Interstate Compact in Relation to Petroleum Conservation."

Because of the unusual interest in conservation at the present time and the study which has been made of it by this section through its committees and members, Peter Q. Nyce, secretary of the section, is prevailing upon the membership to have a large attendance present. As recommendations may be made by the section to the American Bar Association a large representation is especially desired.—C. E. K.

THIRD GRADE GASOLINE INCREASES COMPETITION

NEW YORK, Sept. 7.—Intensified competition in retail marketing through the introduction of third grades of gasoline by some of the larger companies has brought about a chaotic condition in eastern markets and notwithstanding the higher market for motor fuel at the refineries during the past week, retail markets have weakened. Marketers who have already introduced third grades are retailing this product at as low as 10 gallons for $1, including tax, in some sections of the territory. Large integrated companies which have not yet put a competitive priced gasoline on the market are being compelled to meet the competition of third grade marketers by reductions in prices for their regular quality gasoline.

Some of the leading brands of motor fuel are selling in New York and New England at as low as 8 and 9 gallons for $1, including tax. Marketers look for an early change for the better in the retail situation, however, basing their belief not only on the steady strengthening of crude oil and refinery gasoline markets, but upon the plans of most large integrated companies to introduce third grades to better their competitive position.

CONSERVATION LAWS IN VARIOUS STATES

The Federal Oil Conservation Board has just published a booklet containing a compilation of national and state statutes relating to the production of oil and gas, with an insert of the new Texas conservation law bringing the publication up to date. In a statement announcing the booklet the board says:

The unit operation plan for an oil pool which was first conceived by Henry L. Doherty, head of the Cities Service organization, after scientific investigations revealed its desirability, is now generally accepted in this country and throughout the world and appears to be the most favored co-operative method of production. It involves operating an oil pool as a unit, with owners of property in the pool participating in the profits equitably. The Federal Government has placed its stamp of approval on this plan, as it is held to eliminate waste of oil and natural gas, offers a means of holding down production and reduces expenses in developing a pool.

Congress has authorized the use of the plan for pools partly or wholly in the public domain by an act passed shortly before it adjourned last spring. It has also been authorized in three states.

Nineteen states now have conservation laws and regulations relating to the production of oil and gas. Permits to drill and spacing of new wells are measures used to control new drilling. Fifteen of the 19 states control new drilling in some manner. All 19 have laws governing damage to productive strata. Fifteen states regulate the physical loss of gas or oil aboveground. Waste utilization is covered in the statutes of 14 states.

Production in excess of market demands, such as economic waste, waste threatening premature exhaustion, waste incident to overproduction and waste incident to the creation of excess storage, is regulated in nine states. Eleven states regulate production by provisions dealing with allowable percentages of open flow, gaugings, rock pressure tests, production reports, repressuring operations, and so on. In the laws of nine states are found provisions for production from a common source by proration and proportional production and provisions affecting gathering, common purchasers, ratable taking, and so forth. Ratable taking from competing fields is covered in the laws of three states.

California, New Mexico and Wyoming are the only states now having laws on unit or co-operative development or operating agreements.

BUREAU REPORT SHOWS 124,000 RETAIL UNITS

LOS ANGELES, Calif., Aug. 29.—There were approximately 124,000 filling stations in the United States in 1929 according to a report just released by the Bureau of Census.

These filling stations did a business of nearly $1,900,000,000, whereas 135,600 restaurants and other eating places did a total business of $2,097,000,000 and 57,716 drug stores showe total sales of $1,683,000,000.

Filling stations selling gas, oil and fuel oil numbered 55,787 and made 930,349,003 sales, being 1.86 per cent of all retail sales made in the United States by all kinds of businesses.

Filling stations with tires and accessories numbered 33,443 and made 650,818,939 sales, or 1.30 per cent of all sales.

Filling stations with candy, lunch counters, tobacco, groceries or other merchandise numbered 34,749 and made 302,674,433 sales, or 0.61 per cent of all sales.

Garages making repairs and selling gas and oil numbered 54,199 and made 603,579,817 sales, or 1.21 per cent of all sales.

Parking stations, parking garages and lots selling gas and oil numbered 742 and made 18,190,119 sales, or .01 per cent of all sales.

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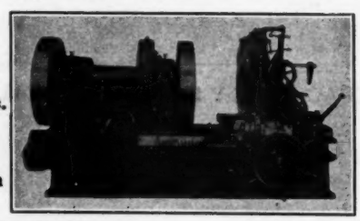
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COLUMBUS, OHIO

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS

Pipe Line Report for Month of July

Runs

	Month (bbls.)	Dy.av. (bbls.)
Prairie P. L. Co.*	554,900	17,900
Gulf P. L. Co.	1,675,278	54,041
Texas P. L. Co.	778,762	25,121
Magnolia P. L. Co.	1,944,019	62,710
Empire P. L. Co.	2,454,362	79,173
Cosden P. L. Co.	634,878	20,480
Stanolind P. L. Co.*	3,106,200	100,200
Oklahoma P. L. Co.	2,277,149	73,456
Other lines*	6,138,000	198,000
Total July	19,563,548	631,081
Total June	20,005,456	666,848
Difference	441,908	35,767

Shipments

Prairie P. L. Co.	2,626,499	84,726
Gulf P. L. Co.	1,674,036	54,001
Texas P. L. Co.	860,766	28,412
Magnolia P. L. Co.	1,548,704	49,958
Empire P. L. Co.	2,607,823	84,123
Cosden P. L. Co.	744,909	24,029
Stanolind P. L. Co.	3,738,197	120,587
Oklahoma P. L. Co.	2,353,122	75,907
Other lines*	6,975,000	225,000
Total July	23,149,033	746,743
Total June	22,426,572	747,552
Difference	722,461	809

Stocks

Prairie O. & G. Co.*	37,460,000
Gulf P. L.-Gypsy Oil Co.	9,121,261
The Texas Company	3,566,327
Magnolia Petroleum Co.	6,642,981
Empire P. L. Co.	4,820,727
Mid-Continent Pet. Corp.	3,662,877
Stanolind Crude Oil Pur. Co.*	18,102,000
Oklahoma P. L. Co.	2,225,653
Carter Oil Co.	7,954,854
Other lines*	17,540,000
Total July	111,096,680
Total June	114,630,501
Difference	3,533,828

*Estimated.

EASTERN PIPE LINE REPORT FOR MONTH OF JULY

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky, Illinois, Indiana and Michigan for June and July.

	June,'31	July,'31
Nat. Transit	142,665.44	133,220.85
S. W. Pa. P. L.	74,374.26	71,451.01
Eureka P. L.	303,225.17	289,307.41
Buckeye P. L. (Macksburg)	293,480.77	243,334.42
Buckeye P. L. (Cleveland)	11,410.57	11,493.40
Buckeye P. L. (Lima, etc.)	87,182.23	86,516.97
Indiana P. L.	3,000.67	2,402.03
Cumberland P. L.	156,303.08	164,965.59
N. Y. Transit	28,964.08	25,816.95
Tide Water P. L.	25,859.99	25,578.82
Pure Oil	173,774.98	184,069.94
Bradford Trans.	323,059.46	334,264.05
Total	1,623,300.72	1,572,421.44
Daily average	54,110.02	50,723.24

Petroleum Deliveries

The following table exhibits the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for June and July.

	June,'31	July,'31
Nat. Transit	452,276.53	545,139.48
S. W. Pa. P. L.	446,843.13	444,267.19
Eureka P. L.	400,401.52	389,088.42
Buckeye P. L. (Macksburg)	265,663.53	242,021.51
Buckeye P. L. (Cleveland)	1,709.71	1,950.36
Buckeye P. L. (Lima, etc.)	1,950,031.09	1,906,783.68
Indiana P. L.	998,921.71	975,959.98
Cumberland P. L.	103,631.73	115,573.69
Southern P. L.	11,865.96	71,576.50
N. Y. Transit	169,549.34	173,789.42
Northern P. L.	144,262.80	181,895.41
Tide Water P. L.	472,572.62	403,796.82
Pure Oil	290,068.38	189,026.80
Bradford Tran.	319,547.18	482,852.88
Tuscarora	607,326.68	436,907.19
Total	6,634,671.91	6,560,609.33
Daily average	221,155.73	211,632.56

Gross Stocks

The gross stocks held by various pipe lines in the oil producing sections of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of June and July.

	June,'31	July,'31
Nat. Transit	698,669.24	657,463.03
S. W. Pa. P. L.	410,763.21	426,536.86
Eureka P. L.	1,839,688.05	1,741,116.22
Buckeye P. L. (Macksburg)	373,836.66	325,616.77
Buckeye P. L. (Cleveland)	86,846.76	88,005.67
Buckeye P. L. (Lima, etc.)	3,163,645.51	3,110,772.07
Indiana P. L.	508,947.64	527,931.01
Cumberland P. L.	639,041.14	636,061.14
Southern P. L.	245,232.04	214,438.42
N. Y. Transit	156,733.77	161,414.97
Northern P. L.	282,847.01	218,880.21
Tide Water P. L.	836,307.12	1,009,357.89
Tuscarora	12,683.45	12,766.39
Pure Oil	426,437.22	424,712.11
Bradford Trans.	238,670.71	114,837.03
Total	9,903,349.53	9,569,849.78
Decrease	824,890.45	333,499.75

Grades of Oil

The following table shows the amount of the different grades of oil held by the Eastern Pipe Lines at the close of June and July, showing gross stocks of the above fields:

	June,'31	July,'31
Pennsylvania	3,682,748.26	3,439,601.00
Lima	763,086.16	787,866.84
Kentucky	649,341.95	646,541.50
Mid-Continent	4,391,327.49	4,264,314.47
Illinois		18,123.10
Michigan	416,845.67	413,402.87
Total	9,903,349.53	9,569,849.78

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1928	1929	1930	1931
January	52,904	51,749	75,907	53,939
February	57,002	51,833	79,256	55,163
March	57,485	54,252	76,688	54,331
April	56,812	58,444	84,536	54,914
May	62,067	59,902	70,546	53,344
June	58,230	58,833	75,430	54,110
July	57,164	66,987	68,931	50,723
August	57,745	66,087	54,291	
September	53,487	67,315	56,595	
October	58,100	76,093	58,179	
November	53,865	74,831	52,332	
December	52,025	74,561	53,999	

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1928	1929	1930	1931
January	146,465	165,721	217,623	175,369
February	167,368	169,387	224,355	183,494
March	158,883	161,474	223,846	189,508
April	172,935	169,737	241,845	191,450
May	180,559	184,281	248,383	199,247
June	188,024	185,404	234,401	221,155
July	189,470	194,763	207,094	211,632
August	192,853	194,946	205,506	
September	194,138	201,214	193,999	
October	176,000	191,367	157,675	
November	176,898	202,743	146,638	
December	173,572	186,257	143,001	

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines at the close of each month for the past three years:

	1929	1930	1931
January	7,596,564	12,220,045	11,831,002
February	8,737,835	12,991,561	11,506,489
March	9,002,058	13,247,217	11,012,162
April	8,978,172	13,233,961	11,044,487
May	8,903,560	12,052,953	10,728,239
June	8,921,275	13,396,855	9,903,349
July	9,211,565	13,268,562	9,569,849
August	9,440,642	13,047,051	
September	9,443,067	12,812,018	
October	9,441,101	12,437,555	
November	9,868,538	11,851,380	
December	11,253,953	11,751,952	

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, August 1	575,856.71
Runs from wells	494,430.56
Regular deliveries	283,141.98
Other deliveries	247,457.52

The amount of Illinois oil run by the Tide Water Pipe Line Co. in July was 25,578.82 bbls. Deliveries were 6,077.07 bbls. Adding these figures to those of the Illinois Pipe Line Co. makes the runs and deliveries as follows:

1931—	Runs	Deliveries
July	520,009.38	289,219.05
1930—		
January	543,387.95	498,293.93
February	548,416.33	414,536.59
March	631,944.43	469,119.53
April	530,074.22	509,304.60
May	605,147.37	504,060.84
June	572,662.57	468,658.81
July	604,529.54	388,454.47
August	594,642.12	375,742.43
September	457,001.11	371,691.63
October	478,442.12	320,688.73
November	422,794.68	355,403.12
December	556,418.78	383,719.55
1931—		
January	468,429.04	669,573.19
February	429,284.54	461,262.85
March	424,638.23	356,662.26
April	421,814.98	282,532.65
May	433,231.80	322,513.95
June	510,805.78	320,258.13

Tide Water Pipe Co., Ltd., also delivered in July 92,374.01 bbls. Oklahoma oil.

AVERAGE DAILY RECEIPTS OF CALIFORNIA CRUDE AND REFINED OIL AT ATLANTIC AND GULF PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	7,418	8,742	38,968	21,226	5,258	81,613	.....	.....	.....	.....	97	81,710
September	6,300	6,400	25,600	13,400	9,567	61,267	.....	.....	.....	.....	2,432	63,700
October	2,516	3,065	27,258	16,419	4,903	54,161	.....	.....	.....	.....	5,355	59,516
November	8,367	6,233	33,800	17,733	4,600	70,733	.....	.....	.....	.....	4,800	75,533
December	5,516	4,323	30,645	9,678	3,580	53,742	.....	.....	.....	.....	4,645	58,387
January	8,387	6,613	21,968	14,678	11,096	62,742	.....	.....	.....	.....	6,129	68,871
February	5,787	2,713	29,143	4,000	5,750	47,393	.....	.....	.....	.....	3,750	51,143
March	10,032	1,611	21,388	7,324	8,774	49,129	.....	.....	.....	.....	6,355	55,484
April	5,133	.....	19,200	16,500	10,067	50,900	.....	.....	.....	.....	4,000	54,900
May	4,452	3,064	19,903	11,226	6,258	44,903	.....	.....	.....	.....	2,355	47,258
June	4,267	.....	25,100	6,333	3,500	39,200	.....	.....	.....	.....	.....	39,200
July	6,774	1,194	24,612	11,065	9,902	53,548	.....	.....	.....	.....	1,335	54,903

AVERAGE DAILY IMPORTS OF CRUDE AND REFINED OIL AT PRINCIPAL UNITED STATES PORTS

Average barrels per day in 1930-31—	ATLANTIC PORTS Baltimore	Boston	New York	Philadelphia	Others	Total	GULF COAST PORTS Galveston	New Orleans, Baton Rouge	Port Arthur Sabine Pass	Tampa	Total	Total all ports
August	39,032	4,484	145,613	33,355	25,097	247,581	8,419	9,323	8,548	3,000	29,290	276,871
September	38,867	8,533	150,933	34,500	25,567	258,400	6,433	12,234	.....	3,800	22,467	280,867
October	19,839	11,742	146,194	35,355	26,967	240,097	6,065	7,067	2,774	2,545	18,451	258,548
November	39,633	35,900	124,633	36,467	24,667	261,300	2,467	7,366	.....	1,767	11,600	272,900
December	21,419	14,033	122,774	32,839	33,774	224,839	6,290	10,613	2,097	290	19,290	244,129
January	17,613	13,519	154,225	32,902	30,612	248,871	2,032	11,677	2,097	3,097	18,903	267,774
February	31,321	16,929	127,786	31,714	26,857	234,607	4,536	11,571	.....	536	16,643	251,250
March	27,645	18,935	141,160	26,290	21,129	235,161	4,065	2,580	.....	1,968	8,613	246,774
April	35,000	10,533	105,000	29,767	35,533	215,833	2,733	3,400	.....	.....	6,133	221,966
May	30,129	8,774	107,000	25,452	26,710	198,065	.....	2,000	.....	.....	2,000	200,065
June	30,067	10,833	111,767	27,000	20,833	200,500	3,300	5,500	3,167	1,333	12,300	212,800
July	26,387	11,226	104,678	29,322	21,773	193,387	6,903	7,419	4,194	.....	18,516	211,903

GROSS PRODUCTION OF CRUDE OIL IN THE UNITED STATES FOR 12 MONTHS

(In Barrels of 42 Gallons)

1930—		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Rocky Mts.	Eastern	Total
July:	Month	18,802,024	18,032,514	25,973,521	3,541,409	1,713,680	2,079,769	3,275,894	3,830,000	77,248,811
	Daily average	606,517	581,694	837,856	114,239	55,280	67,089	105,674	123,548	2,491,897
August:	Month	18,770,466	17,162,034	25,069,598	3,491,530	1,700,102	2,151,120	3,193,341	3,417,000	74,955,191
	Daily average	605,499	553,614	808,696	112,630	54,842	69,391	103,011	110,226	2,417,909
September:	Month	17,984,506	16,509,120	23,111,822	3,405,510	1,583,280	2,008,060	3,239,010	3,396,000	71,237,108
	Daily average	599,477	550,304	770,394	113,517	52,776	66,935	107,967	113,200	2,374,570
October:	Month	18,244,053	16,632,523	23,626,553	3,517,913	1,636,552	2,142,885	3,225,550	3,627,000	72,707,029
	Daily average	588,518	536,533	762,147	115,223	52,792	69,125	104,050	117,000	2,345,388
November:	Month	18,109,459	14,941,770	22,035,222	3,459,330	1,557,870	2,136,948	2,957,100	3,222,000	68,419,699
	Daily average	603,648	498,059	734,507	115,311	51,929	71,231	98,570	107,400	2,280,656
December:	Month	17,786,728	15,057,103	21,810,359	3,432,661	1,590,951	2,157,534	3,118,663	3,328,000	68,281,999
	Daily average	573,765	485,713	703,560	110,731	51,321	69,598	100,602	107,355	2,202,645
1931—										
January:	Month	16,485,738	14,850,953	20,019,212	3,432,475	1,574,955	2,135,037	2,966,142	3,374,000	64,838,512
	Daily average	531,798	479,063	645,781	110,725	50,805	68,872	108,839	2,091,565	
February:	Month	14,930,932	13,531,980	18,957,571	3,341,016	1,402,492	1,981,616	2,747,024	3,129,000	60,031,631
	Daily average	533,248	483,285	677,057	119,322	50,089	70,772	98,108	111,750	2,145,629
March:	Month	16,364,842	16,627,687	22,453,619	3,498,598	1,469,245	2,061,576	2,898,035	3,374,000	68,747,602
	Daily average	527,898	536,377	724,310	112,858	47,395	66,502	93,485	108,839	2,217,665
April:	Month	15,803,541	16,815,990	26,887,717	3,281,880	1,412,220	2,008,021	2,901,870	3,273,000	72,384,239
	Daily average	526,785	559,255	896,257	109,396	47,074	66,934	96,729	109,100	2,412,808
May:	Month	16,448,960	17,333,867	28,708,684	3,341,366	1,446,274	2,232,568	3,098,419	3,190,000	75,800,138
	Daily average	530,612	559,157	926,086	107,786	46,654	72,018	99,949	102,900	2,445,166
June:	Month	15,641,436	16,678,200	29,139,833	3,175,440	1,344,459	1,850,511	2,986,200	3,166,000	73,982,070
	Daily average	521,381	555,940	971,327	105,848	44,815	61,684	99,540	105,533	2,466,069
Total 12 months		205,372,485	194,173,741	287,793,711	40,973,128	18,432,071	24,945,645	36,607,248	40,326,000	848,624,029